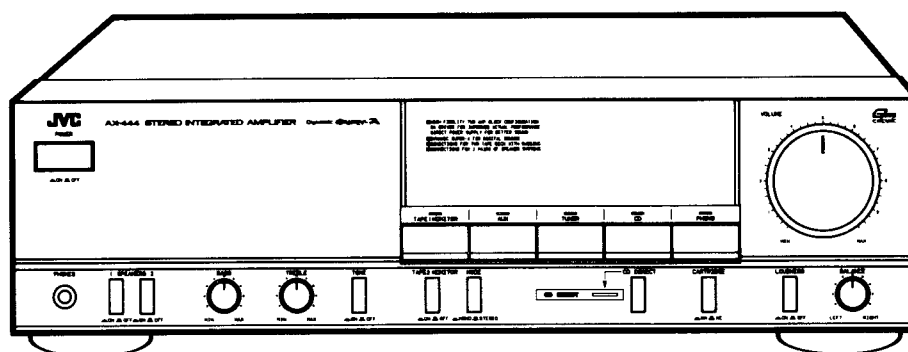


JVC

SERVICE MANUAL

STEREO INTEGRATED AMPLIFIER

MODEL No. **AX-444BK**



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Safety Precautions

1. The design of this product contains special hardware and may circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

5. Leakage current check (Electrical shock hazard testing)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

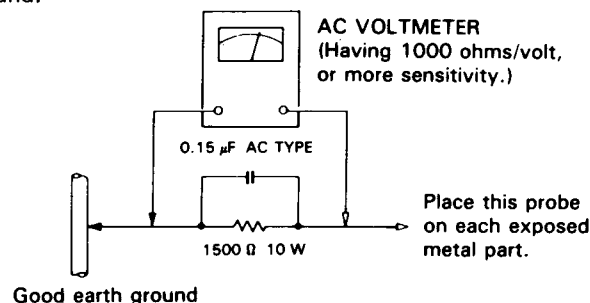
Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).
- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 Ω 10 W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Specifications

OVERALL CHARACTERISTICS

Output power
85 watts per channel into 4 ohms at 1 kHz (DIN). (For Continental Europe, the United Kingdom and Australia.)

85 watts per channel into 8 ohms at 1 kHz (DIN).

75 watts per channel, min. RMS, both channels driven, into 8 ohms from 20 Hz to 20 kHz, with no more than 0.007% total harmonic distortion.

80 watts per channel, min. RMS, both channels driven, into 8 ohms at 1 kHz with no more than 0.003% total harmonic distortion. (measured by JVC Audio Analyzer System)

Total harmonic distortion : 0.007% (20 Hz – 20 kHz, 8 ohms) at 75 watts
Intermodulation distortion : 0.007% (60 Hz:7 kHz = 4:1, 8 ohms) at 75 watts
Power band width : 5 Hz – 50 kHz (IHF, 0.05%, 8 ohms both channels driven)
Frequency response : 5 Hz – 90 kHz +0, –3 dB (8 ohms)
Damping factor : 50 (1 kHz, 8 ohms)

Input terminals
Input sensitivity/impedance (1 kHz)
PHONO (MM) : 2.5 mV/47 kohms
PHONO (MC) : 200 μ V/100 ohms
CD/AUX/ : 200 mV/43 kohms
TUNER/TAPE 1, 2

Signal-to-noise ratio
PHONO (MM) : 86 dB ('66 IHF)
PHONO (MC) : 67 dB ('66 IHF)
CD/AUX/ : 101 dB ('66 IHF)
TUNER/TAPE 1, 2
PHONO (MM) : 82 dB ('78 IHF) (REC OUT)
PHONO (MC) : 75 dB ('78 IHF) (REC OUT)
CD/AUX/ : 76 dB ('78 IHF)
/TUNER/TAPE 1, 2 (SP OUT)
PHONO (MM) : 67 dB (DIN)
PHONO (MC) : 67 dB (DIN)
CD/AUX/ : 68 dB (DIN)
TUNER/TAPE 1, 2

Tone controls : TREBLE: +8 \pm 1 dB –8 \pm 1 dB (at 10 kHz)
BASS: +8 \pm 1 dB –8 \pm 1 dB (at 100 Hz)

Loudness controls : +6 dB (at 100 Hz)
(Volume control at –30 dB position)

EQUALIZER

PHONO overload capacity
PHONO (MM) : 100 mV (0.02% THD)
PHONO (MC) : 8 mV (0.04% THD)

PHONO RIAA deviation
PHONO (MM) : \pm 0.3 dB (20 Hz – 20 kHz)
PHONO (MC) : \pm 0.5 dB (20 Hz – 20 kHz)

Recording output
Output level/impedance
TAPE REC-1, 2 : 200 mV/Maximum 2 k ohms

GENERAL

Dimensions : 435 (W) x 125 (H) x 306 (D) mm
(17-3/16" x 4-15/16" x 12-1/16")

Weight : 7.1 kg (15.7 lbs.)

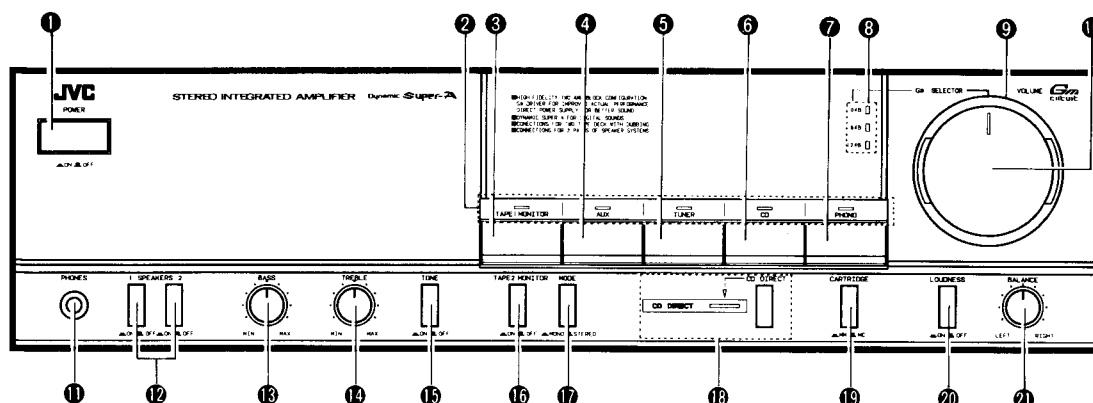
Design and specifications subject to change without notice.

POWER SPECIFICATIONS

Areas	Line voltage & frequency	Power consumption
Continental Europe	AC220V \sim , 50Hz	220watts
U.K.	AC240V \sim , 50Hz	530watts
Australia		
Other areas	AC110/120/220/240/V \sim selectable, 50/60Hz	190watts

FRONT PANEL

These instructions are prepared for three models: AX-333BK/AX-444BK/AX-555BK.
Therefore, read the items below concerning each model.



1 POWER

ON (—): Press this button to turn the power on.
OFF (—): Set to this position to turn the power off.

Notes:

- When power is not supplied to this amplifier for 2 – 3 days, the source select button pressed before the power was switched off may be lost when the power is switched on again. If this happens, set the buttons, etc. again.
- An electronic source selector is used in this unit. When the POWER button is first switched on, two or more sources or no source may be selected. Make sure to input the source select data by pressing one of the source selectors.
- If the POWER button is pressed repeatedly to switch on and off too quickly, the same phenomenon as the above will occur.

2 SOURCE INDICATOR

The indicator corresponding to the source select button pressed lights.

3 TAPE 1 MONITOR

Press to listen to a tape deck connected to the TAPE 1 terminals.

4 AUX

Press to listen to the source connected to the AUX terminals.

5 TUNER

Press to listen to radio broadcasts by a tuner connected to the TUNER terminals.

6 CD

Press to listen to the source connected to the CD terminals.

7 PHONO

Press to listen to records played by a turntable connected to the PHONO terminals.

8 Gm SELECTOR indicators (AX-555BK)

These indicators are illuminated according to the setting of the Gm SELECTOR.
0 dB: Set the Gm SELECTOR so that this indicator lights when listening to a high-volume level.
–6 dB: Set the Gm SELECTOR so that this indicator lights when listening to a middle-volume level.
–12 dB: Set the Gm SELECTOR so that this indicator lights when listening to a low-volume level.

9 Gm SELECTOR (AX-555BK)

Setting the Gm selector to –6 dB divides the volume at 0 dB by 4 while setting it to –12 dB divides it by 16. As the Gm selector is turned from 0 dB to –6 dB and –12 dB, residual noise becomes progressively less. Use the Gm selector together with the VOLUME control.

10 VOLUME

Controls the volume of the speakers and headphones.

11 PHONES (Headphones jack)

Plug stereo headphones into this jack for private listening.
If you want to listen to sound from the headphones only, press the SPEAKERS buttons to “OFF”

12 SPEAKERS

Press to switch the speakers connected to the SPEAKERS 1 or 2 terminals on (—) and off (—).

Note: (AX-333BK, AX-444BK)

- When speakers are connected to only one pair of SPEAKERS terminals, press only the SPEAKERS button of the system connected; if both buttons are pressed, sound will not be heard from either speaker system. When two pairs of speakers are connected and either or both SPEAKERS buttons is/are pressed, sound will be heard from either or both speaker system(s).

13 BASS

Turn clockwise to boost bass response and counterclockwise to decrease it.

14 TREBLE

Turn clockwise to boost treble response and counterclockwise to decrease it.

15 TONE (AX-444BK, AX-555BK)

ON (—): Press to adjust the tone with the BASS and TREBLE controls.
DEFEAT (—): Press to this position to obtain a standard (flat) frequency response.

16 TAPE 2 MONITOR

ON (—): Set to this position to listen to the tape deck connected to the TAPE 2 terminals of this unit. If your tape deck is of the 3-head type, you can monitor the recorded sound while recording by setting this button to ON.

OFF (—): Keep this button set to this position, except when you want to listen to the tape deck connected to the TAPE 2 terminals of this unit.

17 MODE (AX-444BK, AX-555BK)

MONO (—): Set to this position to have both speakers produce the sound of both the left- and right-channel signals mixed.
STEREO (—): Normally set to this position.

18 CD DIRECT

Press this button to enjoy listening to the CD with good sound quality. The indicator lights and the signal fed from the CD terminals is directly connected to the volume, bypassing the circuits on the way, thus allowing you to enjoy listening to an improved sound quality.

Note:

- While the CD DIRECT button is pressed, the reproduced sound does not change even if the SOURCE SELECT button (including TAPE 2 MONITOR), MODE button and BALANCE volume are operated, press the CD DIRECT button again to turn the indicator off when using these.

19 CARTRIDGE (AX-444BK, AX-555BK)

MC (—): Press in when using an MC cartridge having an output of less than 0.5 mV.
MM (—): Press again when using an MM or MC cartridge having an output of more than 0.5 mV.

20 LOUDNESS

ON (—): To compensate for the ear's lower sensitivity at low listening levels.
OFF (—): To bypass the LOUDNESS circuit.

21 BALANCE

Balances the volume between the left and right speakers. Usually set it to the center click position.

OPERATION

Before operation, always be sure to set VOLUME at minimum.

When the volume is increased after selecting a source position with no equipment connected to the input terminal, other connected devices (such as speakers) may be adversely affected by external noise and inductive hum.

Listening to broadcasts

1. Connect a tuner to the TUNER terminals on the rear panel.
2. Press the POWER button on.
3. Press the TUNER button and make sure that the TAPE 1 MONITOR and TAPE 2 MONITOR buttons are set to off.
4. Select the speaker system with the SPEAKERS switches.
5. Operate the tuner according to its instruction manual.
6. Adjust the VOLUME, LOUDNESS, BALANCE and BASS/TREBLE controls.

Listening to records

1. Connect a turntable to the PHONO terminals on the rear panel.
2. Press the POWER button on.
3. Set the CARTRIDGE button of this unit according to the cartridge in use. (AX-444BK, AX-555BK)
4. Press the PHONO button and make sure that the TAPE 1 MONITOR and TAPE 2 MONITOR buttons are set to off.
5. Select the speaker system with the SPEAKERS switches.
6. Operate the turntable according to its instruction manual.
7. Adjust the VOLUME, LOUDNESS, BALANCE and BASS/TREBLE controls.

Listening to tapes

1. Connect a tape deck to the PLAY terminals of TAPE 1 or TAPE 2.
2. Press the POWER button on.
3. Press the TAPE 1 MONITOR button to play back the TAPE 1 deck. For playback of the TAPE 2 deck, press the TAPE 2 MONITOR button to ON (■).
4. Select the speaker system with the SPEAKERS switches.
5. Operate the tape deck for playback according to its instruction manual.
6. Adjust the playback sound controls as required.

Note:

- Do not place the tape deck directly on the amplifier, because it may cause the amplifier to malfunction.

Using stereo headphones

Stereo headphones can be plugged into the front panel jack. Plugging headphones into the PHONES jack does not switch off the speaker sound.

Recording tapes

— Recording from records —

1. Connect a tape deck to the REC terminals of the TAPE 1 or TAPE 2 terminals.
2. Press the POWER button on.
3. Select a speaker system if you wish to hear the sound while recording.
4. Press the PHONO button.
5. Operate the turntable.
6. Operate the tape deck for recording.

— Recording from other sources (TUNER, CD, AUX) —

Press the TUNER, CD or AUX button to record radio broadcasts, or the source connected to the CD, AUX terminals.

All other operations are identical to when recording from disc source.

Note:

- To record from CD, turn the SOURCE SELECT button to "CD". It is possible to monitor the high quality sound by pressing the CD DIRECT button. When monitoring other sources while recording, press the CD DIRECT button again to turn the indicator off.

— Recording from other sources (PHONO, TUNER, AUX) while listening to the CD —

1. Select the source that you wish to record to from among the PHONO, TUNER and AUX button.
2. Operate the tape deck for recording.
3. Press the CD DIRECT button.

Tape dubbing

Dubbing from the TAPE 1 to TAPE 2 is carried out as follows:

1. Press the TAPE 1 MONITOR button.
 2. Play back the TAPE 1 deck.
 3. Operate the TAPE 2 deck for recording.
- You can perform tape dubbing while listening to the CD by pressing the CD DIRECT button in addition to the above operations.

Notes:

- The sound you hear from the speakers or headphones is the source sound, not that being recorded on the tape.
- Dubbing from TAPE 2 to TAPE 1 is not possible.
- The VOLUME control of this amplifier has no effect on the recording level. Adjust the recording level with the controls on the tape deck.

How to operate the monitor while recording on the tape deck

1. Connect a 3-head tape deck to the TAPE 1 or TAPE 2 terminals.
2. Make sure to connect the signal cords to the PLAY and REC terminals.
3. Select the source from which you want to record by depressing the source select button on this unit.
4. Operate the tape deck for recording as described in its operating manual.
5. By playing the source component, you can record on the tape deck.
6. While recording on the tape deck, the recorded sound can be heard by depressing the TAPE 1 MONITOR or TAPE 2 MONITOR button on this unit.

Use of S.E.A. Graphic Equalizer

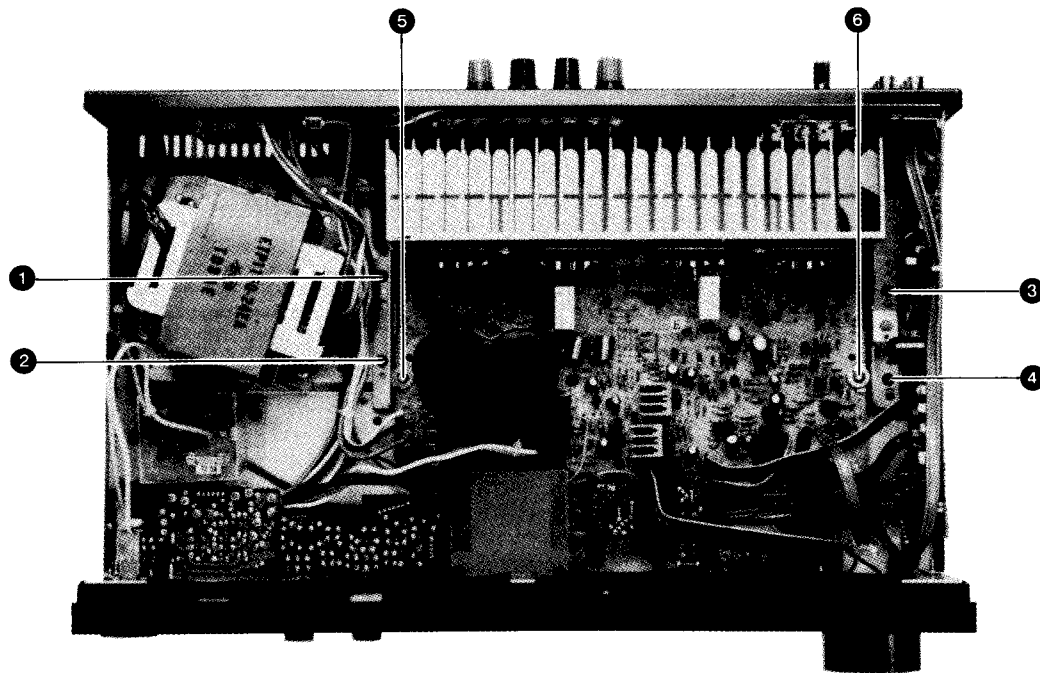
The S.E.A. Graphic Equalizer is JVC's exclusive tone control system. By allowing you to independently boost or lower the response of finely divided sections of the frequency spectrum: the S.E.A. gives you much greater control over the sound quality of your stereo system. With an optionally available S.E.A. Graphic Equalizer, you can tailor the sound to your own taste for different types of music or to compensate for the particular acoustic characteristics of your audio components and listening room.

The TAPE 2 terminals of the AX-333BK, AX-444BK or AX-555BK can be used for connecting the S.E.A. Graphic Equalizer.

Note:

- Even if the S.E.A. Graphic Equalizer is operated while the CD DIRECT button is pressed, reproduced sound is neither adjusted nor compensated. When using the S.E.A. Graphic Equalizer, press the CD DIRECT button once again to turn the indicator off.

Removal Procedures



■ Removing the Top Cover

1. Remove six screws.
2. Remove the top cover by lifting up its rear section and pulling it backward while holding it on incline.

■ Removing the Front Panel

1. Remove the top cover.
2. Pull out the volume knob and remove the nut.
3. Remove three plastic rivets on the upper part of the front panel and three screws from the lower part.

■ Removing the Power Transistors

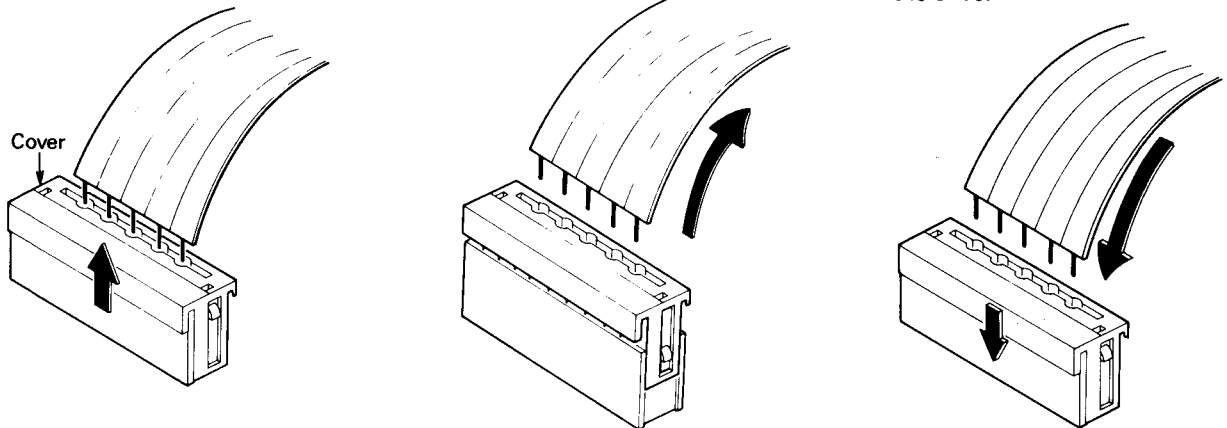
1. Remove the top cover.
2. Remove screws ①—④.
3. Raise the power amplifier PC board so that the pattern side faces up.
4. Remove solder from the power transistors.
5. Remove screws ⑤, ⑥ and remove the heatsinks together with the power transistors.
6. Remove the retaining screw from the defective power transistor and replace it.

■ Use of New-type Connector

(1) Slide the cover upward.

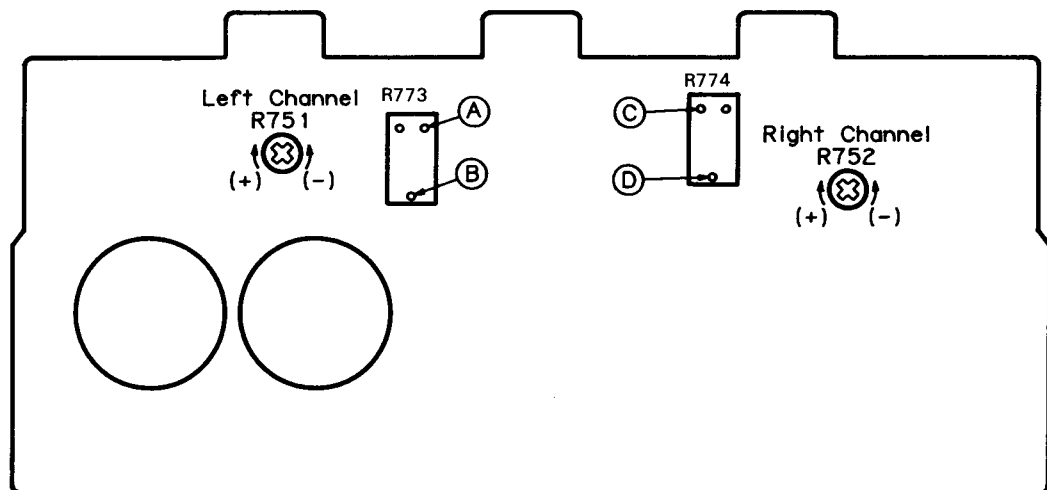
(2) Extract the wires.

(3) Insert the wires after pushing in the cover.



Adjustment Procedures

■ Power Amplifier Idling Adjustment



- Before tuning on the power, turn the semi-fixed resistors (R751 for L channel and R752 for R channel) of the power amplifier circuit board fully counterclockwise.
- Adjust the semi-fixed resistor (R751 and R752) so that the voltage at the following test points of the power amplifier circuit board is within a range of 3 ~ 5 mV after the power is turned on.
 L channel: Measure the voltage between test point ① (emitter of Q761) and output at the test point ②.
 R channel: Measure the voltage between test point ③ (emitter of Q762) and output at the test point ④.
- Readjust resistors R751 and R752 about 10 minutes after the power is turned on (the heatsink temperature must be sufficiently high) so that the voltage at the test points becomes 11 mV.
 Confirm that the voltage does not vary when the heat-sink temperature increases further.
Note: Be sure to perform the measurement with the probes and cabinet of the measuring equipment separated from the grounding terminals of AX-444BK or other measuring equipment.

AX-444BK

JVC

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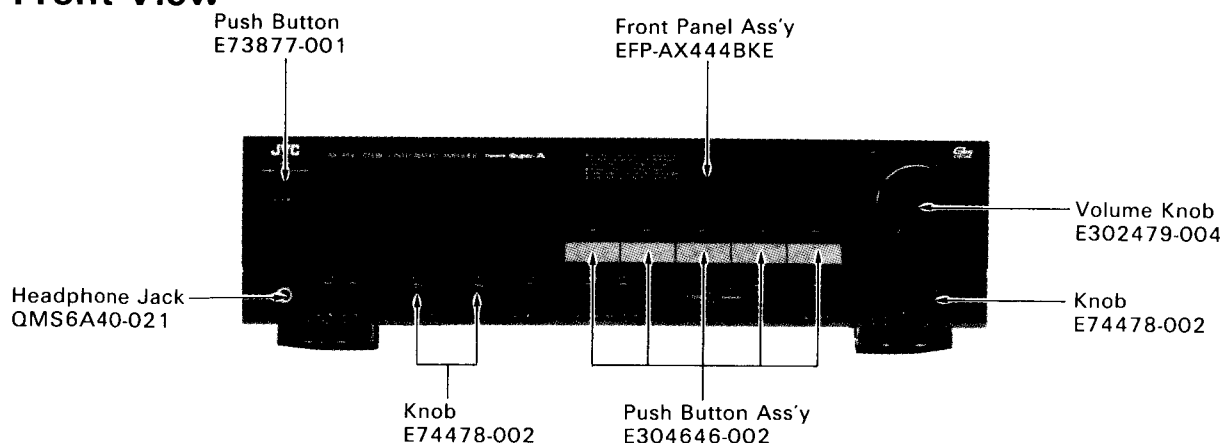
PARTS LIST

Contents

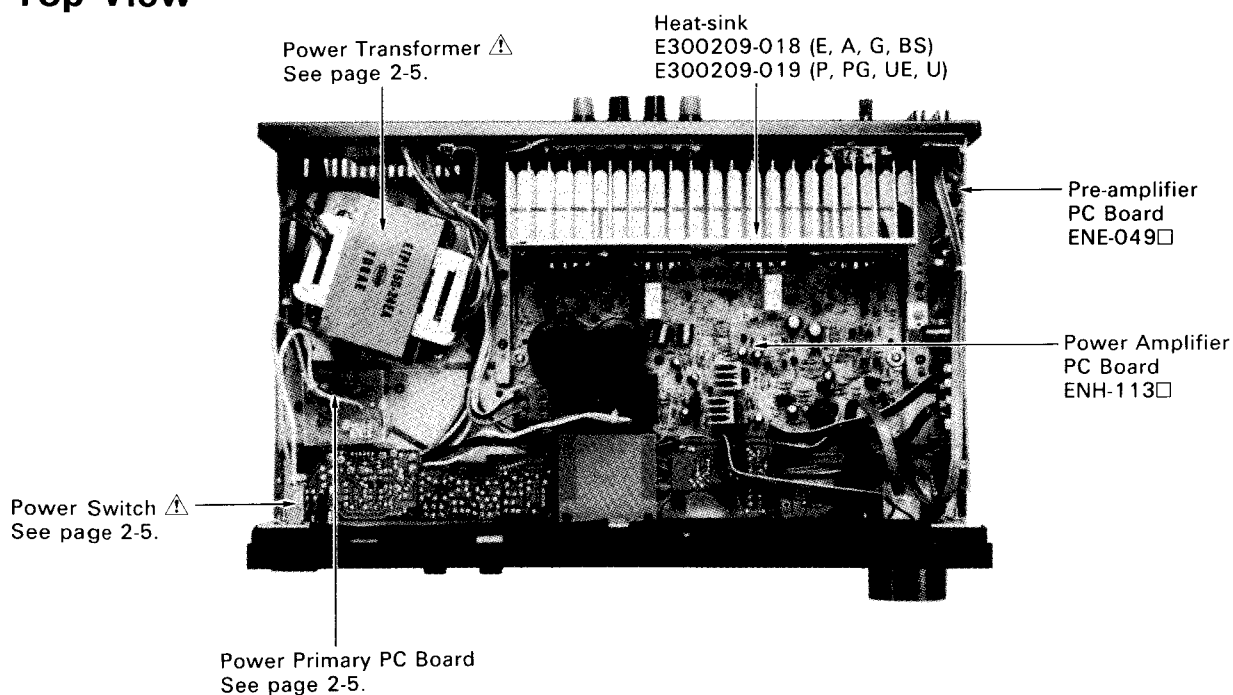
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Main Parts Locations

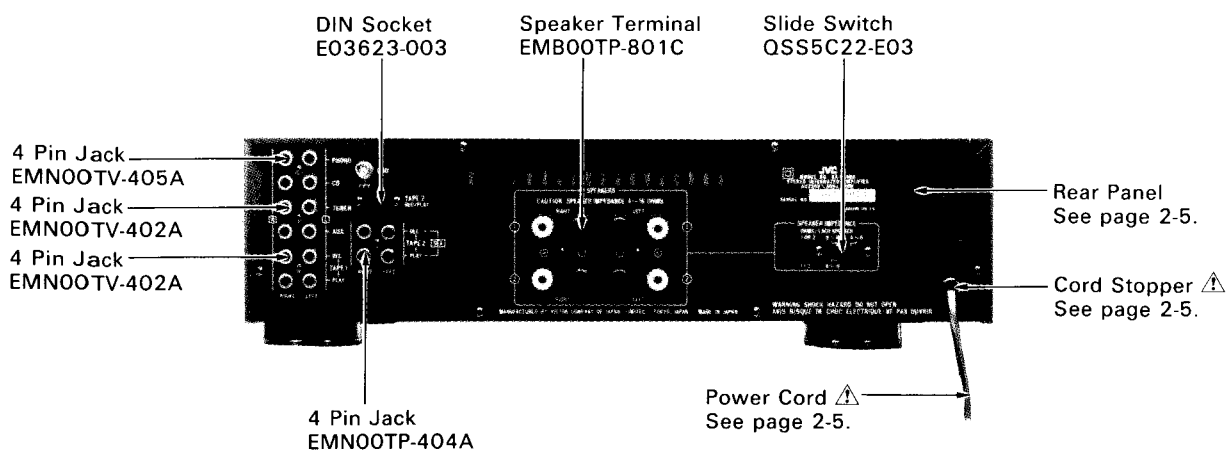
■ Front View



■ Top View

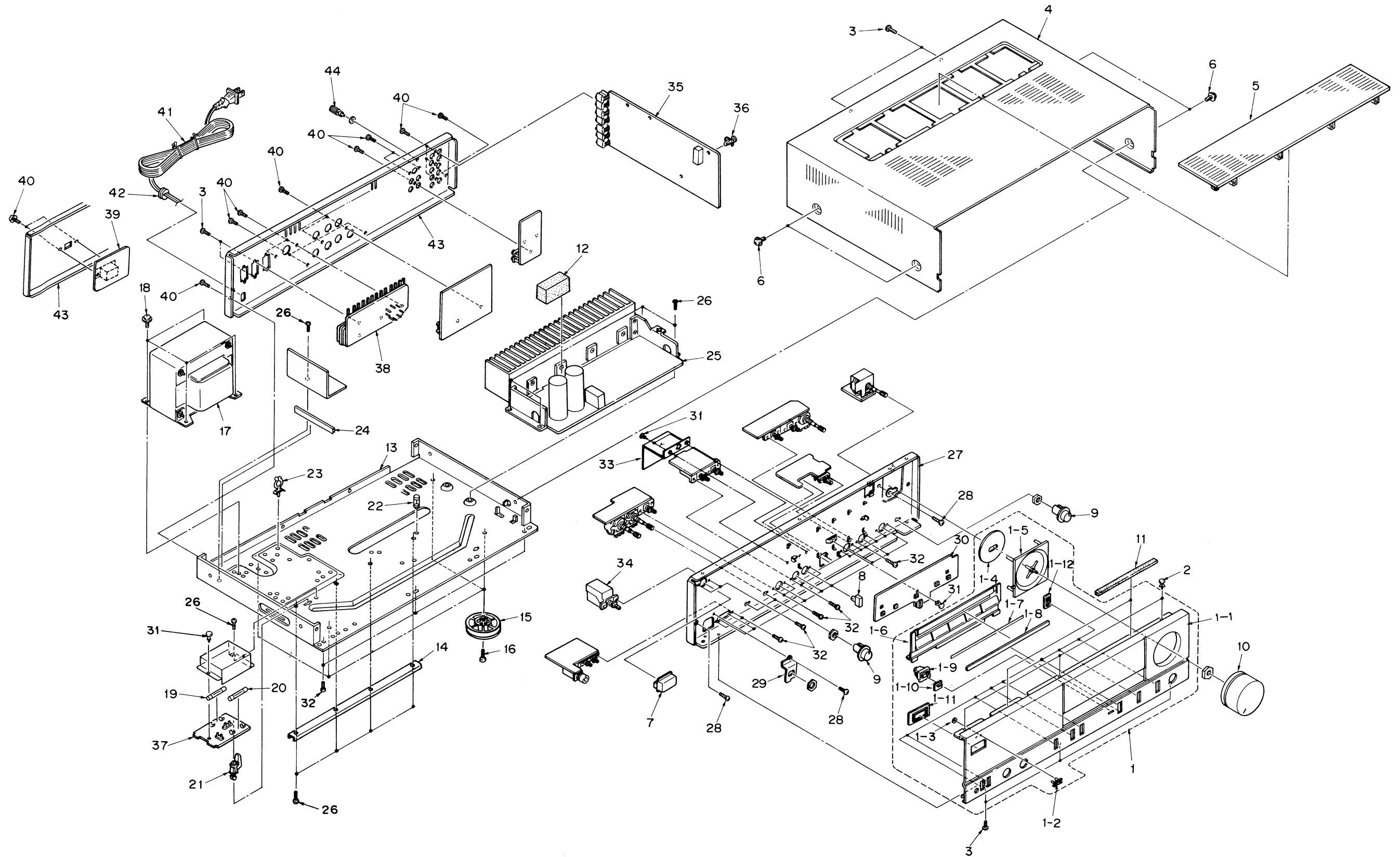


■ Rear View



⚠: Safety Parts

Exploded View and Parts List



Exploded View and Parts List

Item	Parts Number	Parts Name	Q'ty	Description	Areas
1	EFP-AX444BKE	Front Panel Ass'y	1		
1-1	E25584-005	Front Panel	1		
1-2	E72968-001	JVC Mark	1		
1-3	E60912-003	Speed Nut	1		
1-4	E74025-001	Sheet	1		
1-5	E304603-001	Knob Ring	1	Main Volume	
1-6	E304646-002	Push Button Ass'y	1	Function Selector	
1-7	E72437-010	Sheet	1		
1-8	E304602-004	Indicator Sheet	1		
1-9	E305294-001	LED Holder	1		
1-10	E74626-001	Indicator	1	CD DIRECT	
1-11	E73878-001	Push Button Escutcheon	1	POWER	
1-12	E73836-001	Push Button Escutcheon	8		
2	E48729-009	Plastic Rivet	3		
3	SBS83008M	Screw	7		
4	E24721-009	Metal Cover	1		A, G, P, PG, UE, U
	E25026-005	Metal Cover	1		E, BS
5	E23862-005	Grill	1		E, BS
6	E61660-004	Special Screw	4		
7	E73877-001	Push Button	1	POWER	
8	E73835-001	Push Button	7		
9	E74478-002	Knob	3		
10	E302479-004	Volume Knob	1	Main Volume	
11	EX0170007N40S02	Spacer	2		
12	E3400-384	Felt Spacer	1		
13	E10717-016	Chassis Base	1		
14	E74745-001	Bracket	1		
15	E74522-001	Foot Ass'y	4		
16	SBS83010Z	Screw	4		
17	ETP1150-20EA	Power Transformer	1		E, A, G
18	ETP1150-20EABS	Power Transformer	1		BS
	ETP1150-20FA	Power Transformer	1		P, PG, UE, U
	E65389-002	Special Screw	4		
19	QMP5182-2R5SBS	Fuse	1	(F002 or F003)	BS
20	QMP51A2-2R5S	Fuse	1	(F002 or F003)	except BS
21	E34455-001	Fastener	1	(F001)	P, PG, UE, U
22	E71335-002	Fastener	1		
23	QHW3059-001	Wire Clamp	1		
24	E65788-002	Spacer	1		
25	-----	Power Amplifier PC Board	1	(ENH-113□)	
26	SBS13006Z	Screw	4		
27	E25586-001	Front Bracket	1		
28	SBS83008CC	Screw	4		
29	E73218-001	Headphone Bracket	1		
30	-----	Front PC Board	1	(ENE-049-2)	
31	E48729-008	Plastic Rivet	1		
32	SBS13006CC	Screw	14		
33	E74074-002	Shield Bracket	1		
34	QSP1106-004	Power Switch	1		E, A, G
35	QSP1106-004BS	Power Switch	1		BS
36	QSP1106-005	Power Switch	1		P, PG, UE, U
37	-----	Pre-amplifier PC Board	1	(ENE-049□)	
38	E69384-002	Fastener	1		
39	-----	Power Primary PC Board	1	(END-026A)	P, PG, UE, U
	-----	Power Primary PC Board	1	(ENE-049-7)	E, A, G, BS
	-----	Voltage Selector PC Board	1	(TPS-318A)	P, PG, UE, U
	-----	Impedance Selector PC Board	1	(END-047A)	E, A, G, BS
40	E73273-001	Special Screw	16		
41	QMP3900-200	Power Cord	1		E, G
	QMP2560-244	Power Cord	1		A
	QMP9017-008BS	Power Cord	1		BS
	QMP7600-200	Power Cord	1		P, PG, UE, U
42	QHS3876-162BS	Cord Stopper	1		BS
43	E25549-024	Rear Panel	1		except BS
	E25549-021	Rear Panel	1		E, A, G, BS
44	E70078-001	GND Terminal	1		P, PG, UE, U

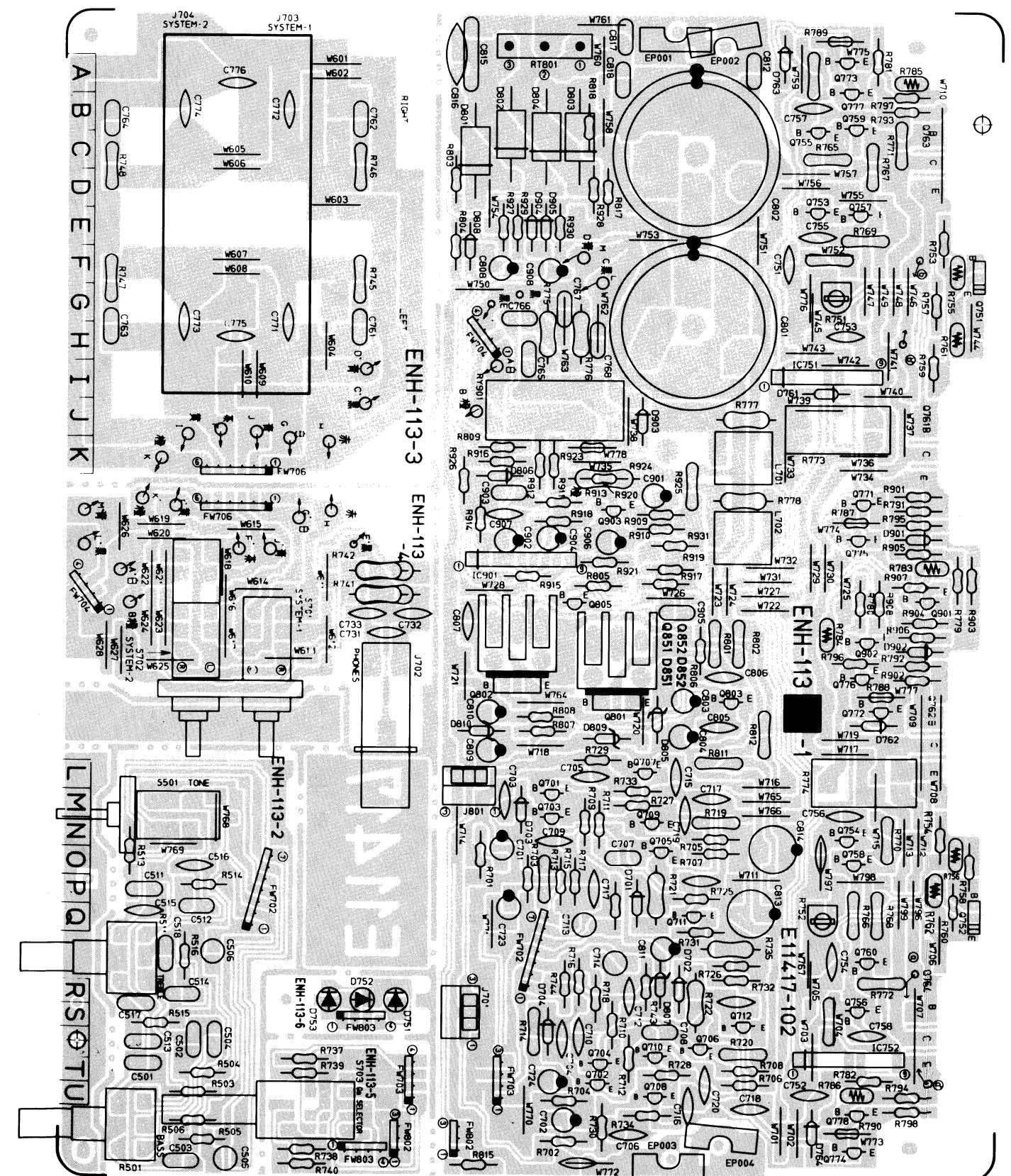
Note: The Marks for Designated Areas
 E Europe P, PG U.S. Military Market
 A Australia UE Saudi Arabia
 G West Germany U Other Countries
 BS U.K. No Mark indicates all areas.

△: Safety Parts

Printed Circuit Board Ass'y and Parts List

■ ENH-113 □ Power Amplifier PC Board

Note: ENH-113 □ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENH-113 D	U.S. Military Market & Other Countries
ENH-113 D	Saudi Arabia
ENH-113 E	Europe, Australia
ENH-113 E BS	U.K.
ENH-113 F	West Germany

TRANSISTORS

ITEM	PART NUMBER	DESCRIPTION		AREA
			MAKER	
Q 701	2SC2240(A,B)	SILICON	TOSHIBA	
Q 702	2SC2240(A,B)	SILICON	TOSHIBA	
Q 703	2SC2240(A,B)	SILICON	TOSHIBA	
Q 704	2SC2240(A,B)	SILICON	TOSHIBA	
Q 705	2SA970(GR,BL)	SILICON	TOSHIBA	
Q 706	2SA970(GR,BL)	SILICON	TOSHIBA	
Q 707	2SA970(GR,BL)	SILICON	TOSHIBA	
Q 708	2SA970(GR,BL)	SILICON	TOSHIBA	
Q 709	2SA933LN(R,S)	SILICON	ROHM	
Q 710	2SA933LN(R,S)	SILICON	ROHM	
Q 711	2SC2240(GR,BL)	SILICON	TOSHIBA	
Q 712	2SC2240(GR,BL)	SILICON	TOSHIBA	
Q 751	2SD636(Q,R)	SILICON	MATSUSHITA	
Q 752	2SD636(Q,R)	SILICON	MATSUSHITA	
Q 753	2SC2240(BL)	SILICON	TOSHIBA	
Q 754	2SC2240(BL)	SILICON	TOSHIBA	
Q 755	2SA970(BL)	SILICON	TOSHIBA	
Q 756	2SA970(BL)	SILICON	TOSHIBA	
Q 757	2SC2235(O,Y)	SILICON	TOSHIBA	
Q 758	2SC2235(O,Y)	SILICON	TOSHIBA	
Q 759	2SA965(O,Y)	SILICON	TOSHIBA	
Q 760	2SA965(O,Y)	SILICON	TOSHIBA	
Q 761	2SD1148LB(O,R)	SILICON	TOSHIBA	D
Q 761	2SD845LB(O,R)	SILICON	TOSHIBA	E
Q 761	2SD845LB(O,R)	SILICON	TOSHIBA	F
Q 762	2SD1148LB(O,R)	SILICON	TOSHIBA	D
Q 762	2SD845LB(O,R)	SILICON	TOSHIBA	E
Q 762	2SD845LB(O,R)	SILICON	TOSHIBA	F
Q 763	2SB755LB(O,R)	SILICON	TOSHIBA	E
Q 763	2SB755LB(O,R)	SILICON	TOSHIBA	F
Q 763	2SB863LB(O,R)	SILICON	TOSHIBA	D
Q 764	2SB755LB(O,R)	SILICON	TOSHIBA	E
Q 764	2SB755LB(O,R)	SILICON	TOSHIBA	F
Q 764	2SB863LB(O,R)	SILICON	TOSHIBA	D
Q 775	2SC1740(R,S)	SILICON	ROHM	
Q 776	2SC1740(R,S)	SILICON	ROHM	
Q 777	2SA933(R,S)	SILICON	ROHM	
Q 778	2SA933(R,S)	SILICON	ROHM	
Q 801	2SD1666(R,S)	SILICON	SANYO	
Q 802	2SB1133(R,S)	SILICON	SANYO	
Q 803	2SA933(R,S)	SILICON	ROHM	
Q 805	2SC1740(R,S)	SILICON	ROHM	
Q 851	2SK246 (GR)	F.E.T.	TOSHIBA	
Q 852	2SK246 (GR)	F.E.T.	TOSHIBA	
Q 901	2SC2240(GR,BL)	SILICON	TOSHIBA	
Q 902	2SC2240(GR,BL)	SILICON	TOSHIBA	
Q 903	2SA970(GR,BL)	SILICON	TOSHIBA	

I. C. S

ITEM	PART NUMBER	DESCRIPTION		AREA
		MAKER		
IC751	VC5022(X,Y)	I.C.	ROHM	
IC752	VC5022(X,Y)	I.C.	ROHM	
IC901	TA7317P	I.C.	TOSHIBA	

DIODES

B I C O D E S					
△	ITEM	PART NUMBER	D E S C R I P T I O N		AREA
				MAKER	
	D701	1S2076-31	SILICON	HITACHI	
	D702	1S2076-31	SILICON	HITACHI	
	D703	1S2076-31	SILICON	HITACHI	
	D704	1S2076-31	SILICON	HITACHI	
	D761	1S2076-31	SILICON	HITACHI	
	D762	1S2076-31	SILICON	HITACHI	
	D763	1S2076-31	SILICON	HITACHI	
	D764	1S2076-31	SILICON	HITACHI	
	D801	S3V20F	SILICON	SHINDENGEN	
	D802	S3V20F	SILICON	SHINDENGEN	
	D803	S3V20F	SILICON	SHINDENGEN	
	D804	S3V20F	SILICON	SHINDENGEN	
	D805	HZ15-1LTD	ZENER	HITACHI	
	D806	1S2076-31	SILICON	HITACHI	
	D807	RD18EB3	ZENER	NEC	
	D808	1S2076-31	SILICON	HITACHI	
	D809	RD18EB3	ZENER	NEC	
	D810	RD18EB3	ZENER	NEC	
	D851	MTZ13JC	ZENER	ROHM	
	D852	MTZ13JC	ZENER	ROHM	
	D901	1S2076-31	SILICON	HITACHI	
	D902	1S2076-31	SILICON	HITACHI	
	D903	1S2076-31	SILICON	HITACHI	
	D904	1S2076-31	SILICON	HITACHI	
	D905	1S2076-31	SILICON	HITACHI	

CAPACITORS

CAPACITORS						
△	ITEM	PART NUMBER	DESCRIPTION			AREA
	C501	QFN81HK-153	0.015MF	50V	MYLAR	
	C502	QFN81HK-153	0.015MF	50V	MYLAR	
	C503	QFN81HK-823	0.082MF	50V	MYLAR	
	C504	QFN81HK-823	0.082MF	50V	MYLAR	
	C505	QEN51HM-475	4.7MF	50V	NON POLE	
	C506	QEN51HM-475	4.7MF	50V	NON POLE	
	C511	QFN81HK-332	3300PF	50V	MYLAR	
	C512	QFN81HK-332	3300PF	50V	MYLAR	
	C513	QFN81HK-183	0.018MF	50V	MYLAR	
	C514	QFN81HK-183	0.018MF	50V	MYLAR	
	C515	QCS21HJ-221	220PF	50V	CERAMIC	
	C516	QCS21HJ-221	220PF	50V	CERAMIC	
	C517	QFN81HK-122	1200PF	50V	MYLAR	
	C518	QFN81HK-122	1200PF	50V	MYLAR	
	C701	EETB2AM-106E	10MF	100V	ELECTRO	
	C702	EETB2AM-106E	10MF	100V	ELECTRO	
	C703	QCS21HJ-470	47PF	50V	CERAMIC	
	C704	QCS21HJ-470	47PF	50V	CERAMIC	
	C705	QCS21HJ-101	100PF	50V	CERAMIC	D
	C705	QCS21HJ-101	100PF	50V	CERAMIC	E
	C706	QCS21HJ-101	100PF	50V	CERAMIC	D
	C706	QCS21HJ-101	100PF	50V	CERAMIC	E
	C707	QFN81HK-332	3300PF	50V	MYLAR	
	C708	QFN81HK-332	3300PF	50V	MYLAR	
	C709	QCS21HJ-100	10PF	50V	CERAMIC	
	C710	QCS21HJ-100	10PF	50V	CERAMIC	
	C713	QEN51HM-475	4.7MF	50V	NON POLE	
	C714	QEN51HM-475	4.7MF	50V	NON POLE	
	C715	QCS21HJ-330	33PF	50V	CERAMIC	
	C716	QCS21HJ-330	33PF	50V	CERAMIC	
	C717	QCS21HJ-330	33PF	50V	CERAMIC	
	C718	QCS21HJ-330	33PF	50V	CERAMIC	
	C719	QCS21HJ-220	22PF	50V	CERAMIC	
	C720	QCS21HJ-220	22PF	50V	CERAMIC	
	C723	QETB1CM-476	47MF	16V	ELECTRO	
	C724	QETB1CM-476	47MF	16V	ELECTRO	
	C731	QCS21HJ-101	100PF	50V	CERAMIC	F
	C732	QCS21HJ-101	100PF	50V	CERAMIC	
	C733	QCS21HJ-101	100PF	50V	CERAMIC	F
	C751	QCF21HP-103	0.01MF	50V	CERAMIC	
	C752	QCF21HP-103	0.01MF	50V	CERAMIC	
	C753	QCF21HP-103	0.01MF	50V	CERAMIC	
	C754	QCF21HP-103	0.01MF	50V	CERAMIC	
	C755	QCS32HJ-680	68PF	500V	CERAMIC	
	C756	QCS32HJ-680	68PF	500V	CERAMIC	
	C757	QCS32HJ-680	68PF	500V	CERAMIC	
	C758	QCS32HJ-680	68PF	500V	CERAMIC	
	C761	QFN81HK-103	0.01MF	50V	MYLAR	F
	C762	QFN81HK-103	0.01MF	50V	MYLAR	
	C763	QFN81HK-103	0.01MF	50V	MYLAR	F
	C764	QFN81HK-103	0.01MF	50V	MYLAR	F
	C765	QFN81HK-104	0.1MF	50V	MYLAR	E
	C765	QFN81HK-104	0.1MF	50V	MYLAR	F
	C765	QFN81HK-473	0.047MF	50V	MYLAR	D
	C766	QFN81HK-104	0.1MF	50V	MYLAR	E

Δ : SAFETY PARTS

CAPACITORS

ITEM	PART NUMBER	DESCRIPTION	AREA
C766	QFN81HK-104	0.1MF 50V MYLAR	F
C766	QFN81HK-473	0.047MF 50V MYLAR	D
C767	QFN81HK-104	0.1MF 50V MYLAR	E
C767	QFN81HK-104	0.1MF 50V MYLAR	F
C768	QFN81HK-104	0.1MF 50V MYLAR	F
C768	QFN81HK-104	0.1MF 50V MYLAR	F
C801	EEW6304-109E	10000MF 63V ELECTRO	
C802	EEW6304-109E	10000MF 63V ELECTRO	
C803	QETB1HM-476	47MF 50V ELECTRO	
C804	QETB1HM-476	47MF 50V ELECTRO	
C805	QCS21HJ-101	100PF 50V CERAMIC	
C808	QETB1HM-105	1MF 50V ELECTRO	
C809	QETB1EM-476	47MF 25V ELECTRO	
C810	QETB1EM-476	47MF 25V ELECTRO	
C811	QETB1EM-106	10MF 25V ELECTRO	
C812	QFN32AK-472	4700PF 100V MYLAR	F
C813	QETB1JM-107	100MF 63V ELECTRO	
C814	QETB1JM-107	100MF 63V ELECTRO	
C815	QFH42EK-104	0.1MF 250V M.MYLAR	
C816	QCE22HP-103A	0.01MF 500V CERAMIC	D
C816	QCE22HP-103A	0.01MF 500V CERAMIC	E
C816	QFN32AK-104	0.1MF 100V MYLAR	F
C817	QFN32AK-472	4700PF 100V MYLAR	F
C818	QFN32AK-104	0.1MF 100V MYLAR	F
C901	QETB1HM-226	22MF 50V ELECTRO	
C902	QETB1AM-107	100MF 10V ELECTRO	
C903	QFN81HK-102	1000PF 50V MYLAR	
C904	QETB1HM-475	4.7MF 50V ELECTRO	
C905	QFN81HK-153	0.015MF 50V MYLAR	
C906	QETB1HM-226	22MF 50V ELECTRO	
C907	QCF21HP-223	0.022MF 50V CERAMIC	
C908	QETB1HM-105	1MF 50V ELECTRO	

RESISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
R743	QRD148J-104S	100K 1/4W CARBON	
R744	QRD148J-104S	100K 1/4W CARBON	
R745	QRD14CJ-100S	10 1/4W UNF. CARBON	F
R746	QRD14CJ-100S	10 1/4W UNF. CARBON	F
R747	QRD14CJ-100S	10 1/4W UNF. CARBON	F
R748	QRD14CJ-100S	10 1/4W UNF. CARBON	F
R751	QVZ3518-471	470 0.1W VARIABLE	
R752	QVZ3518-471	470 0.1W VARIABLE	
R753	QRD148J-101S	100 1/4W CARBON	
R754	QRD148J-101S	100 1/4W CARBON	
R755	ERT-D2WFL351S	350 1/4W THERMISTOR	
R756	ERT-D2WFL351S	350 1/4W THERMISTOR	
R757	QRD148J-471S	470 1/4W CARBON	
R758	QRD148J-471S	470 1/4W CARBON	
R759	QRD148J-391S	390 1/4W CARBON	
R760	QRD148J-391S	390 1/4W CARBON	
R761	ERT-D2WHL202S	2K 1/4W THERMISTOR	
R762	ERT-D2WHL202S	2K 1/4W THERMISTOR	
R765	QRZ0077-272	2.7K 1/4W FUSIBLE	
R766	QRZ0077-272	2.7K 1/4W FUSIBLE	
R767	QRZ0077-471	470 1/4W FUSIBLE	
R768	QRZ0077-471	470 1/4W FUSIBLE	
R769	QRZ0077-100	10 1/4W FUSIBLE	
R770	QRZ0077-100	10 1/4W FUSIBLE	
R771	QRZ0077-100	10 1/4W FUSIBLE	
R772	QRZ0077-100	10 1/4W FUSIBLE	
R773	ERF032K-R22	0.22 3W CEMENT	
R774	ERF032K-R22	0.22 3W CEMENT	
R775	QRG012J-100A	10 1W O.M.FILM	
R776	QRG012J-100A	10 1W O.M.FILM	
R777	QRD125J-330	33 1/2W UNF. CARBON	
R778	QRD125J-330	33 1/2W UNF. CARBON	
R791	QRD148J-331S	330 1/4W CARBON	D
R791	QRD148J-431S	430 1/4W CARBON	E
R791	QRD148J-431S	430 1/4W CARBON	F
R792	QRD148J-331S	330 1/4W CARBON	D
R792	QRD148J-431S	430 1/4W CARBON	F
R792	QRD148J-431S	430 1/4W CARBON	F
R793	QRD148J-331S	330 1/4W CARBON	D
R793	QRD148J-431S	430 1/4W CARBON	E
R793	QRD148J-431S	430 1/4W CARBON	F
R794	QRD148J-331S	330 1/4W CARBON	D
R794	QRD148J-431S	430 1/4W CARBON	E
R794	QRD148J-431S	430 1/4W CARBON	F
R795	QRD148J-221S	220 1/4W CARBON	
R796	QRD148J-221S	220 1/4W CARBON	
R797	QRD148J-221S	220 1/4W CARBON	
R798	QRD148J-221S	220 1/4W CARBON	
R801	QRZ0077-330	33 1/4W FUSIBLE	
R802	QRZ0077-330	33 1/4W FUSIBLE	
R803	QRD148J-123S	12K 1/4W CARBON	
R804	QRD148J-682S	6.8K 1/4W CARBON	
R805	QRD148J-823S	82K 1/4W CARBON	
R806	QRD148J-221S	220 1/4W CARBON	
R807	QRD148J-223S	22K 1/4W CARBON	
R808	QRD148J-203S	20K 1/4W CARBON	
R809	QRD148J-563S	56K 1/4W CARBON	
R811	QRZ0077-330	33 1/4W FUSIBLE	
R812	QRZ0077-330	33 1/4W FUSIBLE	
R817	QRD148J-104S	100K 1/4W CARBON	
R818	QRD148J-104S	100K 1/4W CARBON	
R901	QRD148J-272S	2.7K 1/4W CARBON	
R902	QRD148J-272S	2.7K 1/4W CARBON	
R903	QRD148J-183S	18K 1/4W CARBON	
R904	QRD148J-183S	18K 1/4W CARBON	
R905	QRD148J-123S	12K 1/4W CARBON	
R906	QRD148J-123S	12K 1/4W CARBON	
R907	QRD148J-223S	22K 1/4W CARBON	
R908	QRD148J-223S	22K 1/4W CARBON	
R909	QRD148J-332S	3.3K 1/4W CARBON	
R910	QRD148J-103S	10K 1/4W CARBON	
R911	QRD148J-104S	100K 1/4W CARBON	
R912	QRD148J-823S	82K 1/4W CARBON	
R913	QRD148J-473S	47K 1/4W CARBON	
R914	QRD148J-104S	100K 1/4W CARBON	
R915	QRD148J-683S	68K 1/4W CARBON	
R916	QRD148J-683S	68K 1/4W CARBON	
R917	QRD148J-183S	18K 1/4W CARBON	E
R917	QRD148J-183S	18K 1/4W CARBON	F

Δ : SAFETY PARTS

RESISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
R501	QVDB98C-E15B	100K 1/4W VARIABLE	
R503	QRD148J-203S	20K 1/4W CARBON	
R504	QRD148J-203S	20K 1/4W CARBON	
R505	QRD148J-362S	3.6K 1/4W CARBON	
R506	QRD148J-362S	3.6K 1/4W CARBON	
R511	QVDB98C-E15B	100K 1/4W VARIABLE	
R513	QRD148J-472S	4.7K 1/4W CARBON	
R514	QRD148J-472S	4.7K 1/4W CARBON	
R515	QRD148J-821S	820 1/4W CARBON	
R516	QRD148J-821S	820 1/4W CARBON	
R701	QRD148J-222S	2.2K 1/4W CARBON	
R702	QRD148J-222S	2.2K 1/4W CARBON	
R703	QRD148J-104S	100K 1/4W CARBON	
R704	QRD148J-104S	100K 1/4W CARBON	
R705	QRD148J-202S	2K 1/4W CARBON	
R706	QRD148J-202S	2K 1/4W CARBON	
R707	QRD148J-202S	2K 1/4W CARBON	
R708	QRD148J-202S	2K 1/4W CARBON	
R709	QRD148J-103S	10K 1/4W CARBON	
R710	QRD148J-103S	10K 1/4W CARBON	
R711	QRD148J-101S	100 1/4W CARBON	
R712	QRD148J-101S	100 1/4W CARBON	
R713	QRD14CJ-751S	750 1/4W UNF. CARBON	
R714	QRD14CJ-751S	750 1/4W UNF. CARBON	
R715	QRD148J-163S	16K 1/4W CARBON	
R716	QRD148J-163S	16K 1/4W CARBON	
R717	QRD148J-823S	82K 1/4W CARBON	
R718	QRD148J-823S	82K 1/4W CARBON	
R719	QRD14CJ-121S	120 1/4W UNF. CARBON	
R720	QRD14CJ-121S	120 1/4W UNF. CARBON	
R721	QRD125J-103	10K 1/2W UNF. CARBON	
R722	QRD125J-103	10K 1/2W UNF. CARBON	
R725	QRD148J-391S	390 1/4W CARBON	
R726	QRD148J-391S	390 1/4W CARBON	
R727	QRD148J-152S	1.5K 1/4W CARBON	
R728	QRD148J-152S	1.5K 1/4W CARBON	
R729	QRD148J-333S	33K 1/4W CARBON	
R730	QRD148J-333S	33K 1/4W CARBON	
R731	QRD148J-391S	390 1/4W CARBON	
R732	QRD148J-391S	390 1/4W CARBON	
R733	QRD148J-152S	1.5K 1/4W CARBON	
R734	QRD148J-152S	1.5K 1/4W CARBON	
R735	QRG012J-562A	5.6K 1W O.M.FILM	
R741	QRG012J-331A	330 1W O.M.FILM	
R742	QRG012J-331A	330 1W O.M.FILM	

RESISTORS

△ ITEM	PART NUMBER	DESCRIPTION	AREA
R 911	QRD148J-203S	20K 1/4W CARBON	D
R 911	QRD148J-392S	3.9K 1/4W CARBON	
R 911	QRD148J-333S	33K 1/4W CARBON	
R 921	QRD148J-224S	220K 1/4W CARBON	
R 921	QRD148J-181S	180 1/4W CARBON	D
R 921	QRD148J-181S	180 1/4W CARBON	E
R 921	QRD148J-181S	180 1/4W CARBON	F
R 921	QRG022J-152A	1.5K 2W O.M.FILM	D
R 921	QRD14CJ-470S	47 1/4W UNF.CARBON	
R 921	QRD148J-822S	8.2K 1/4W CARBON	
R 921	QRD148J-123S	12K 1/4W CARBON	
R 921	QRD148J-123S	12K 1/4W CARBON	
R 921	QRD148J-682S	6.8K 1/4W CARBON	D
R 921	QRD148J-822S	8.2K 1/4W CARBON	E
R 921	QRD148J-822S	8.2K 1/4W CARBON	F
R 930	QRD148J-682S	6.8K 1/4W CARBON	D
R 930	QRD148J-822S	8.2K 1/4W CARBON	E
R 930	QRD148J-822S	8.2K 1/4W CARBON	F
R 931	QRD148J-273S	27K 1/4W CARBON	E
R 931	QRD148J-273S	27K 1/4W CARBON	F
R 931	QRD148J-303S	30K 1/4W CARBON	D

△ : SAFETY PARTS

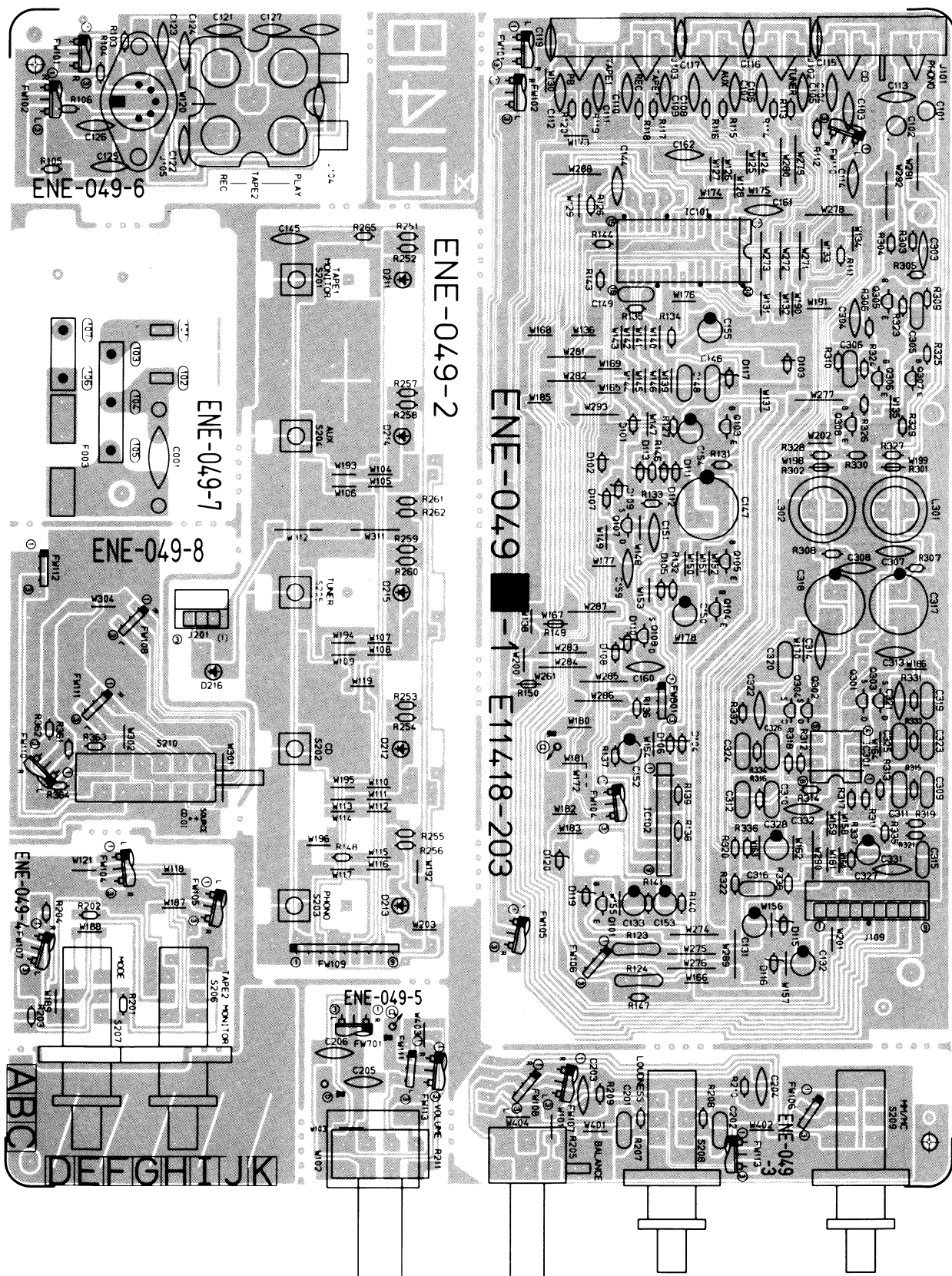
OTHERS

△ ITEM	PART NUMBER	DESCRIPTION	AREA
	EWS013-255H	SOCKET WIRE	E
	EWS013-255H	SOCKET WIRE	F
	E11417-102	PC BOARD	
	E300209-018	HEAT SINK	E
	E300209-018	HEAT SINK	F
	E300209-019	HEAT SINK	D
	E33754-001	BAND	
	E67292-002	H.S.BRACKET(L)	
	E67293-002	BRACKET	
	E70945-H25	HEAT SINK	
	E73265-001	SCREW	
	E73525-001	SCREW	
	SBSB3008CC	SCREW	
	SBSB3008Z	SCREW	
	WABS3000W	WASHER	
J 701	EMV7112-003	CONNECTOR	
J 702	QMS6A40-021	HEADPHONE JACK	
J 703	EMB00TP-801C	SPEAKER TERMINAL	
J 704	EMB00TP-801C	SPEAKER TERMINAL	
J 801	EMV7112-003	CONNECTOR	
L 701	EQL0001-1R0	INDUCTOR	
L 702	EQL0001-1R0	INDUCTOR	
S 501	QST4102-E08	PUSH SWITCH	
S 701	QST4241-E10	PUSH SWITCH	
S 702	QST4241-E10	PUSH SWITCH	
EPO01	E70859-001	EARTH PLATE	F
EPO03	E70859-001	EARTH PLATE	
FW702	EWR37B-30SST	FLAT WIRE	
RT801	E67764-103	WRAPPING TERMINAL	
RY901	ESK5024-218	RELAY	

△ : SAFETY PARTS

■ ENE-049 □ Pre-amplifier PC Board

Note: ENE-049 □ varies according to the areas employed. See note (1) when placing an order.



Note (1)

PC Board Ass'y	Designated Areas
ENE-O.9 [A]	U.S. Military Market & Other Countries
ENE-O.9 [A]	Saudi Arabia
ENE-O.9 [B]	Europe, Australia
ENE-O.9 [C]	West Germany
ENE-O.9 [D] BS	U.K.

TRANSISTORS

ITEM	PART NUMBER	DESCRIPTION		AREA
		MAKER		
Q 101	DTA144EN	SILICON	ROHM	
Q 103	2SC2389(S,E)	SILICON	ROHM	
Q 104	DTC144EN	SILICON	ROHM	
Q 105	DTA144EN	SILICON	ROHM	
Q 107	2SK163(L1)	F.E.T	NEC	
Q 108	2SK163(L1)	F.E.T	NEC	
Q 301	2SK170(BL)	F.E.T	TOSHIBA	
Q 302	2SK170(BL)	F.E.T	TOSHIBA	
Q 303	2SK170(BL)	F.E.T	TOSHIBA	
Q 304	2SK170(BL)	F.E.T	TOSHIBA	
Q 305	2SD655(E,F)	SILICON	HITACHI	
Q 306	2SD655(E,F)	SILICON	HITACHI	
Q 307	2SD655(E,F)	SILICON	HITACHI	
Q 308	2SD655(E,F)	SILICON	HITACHI	

I. C. S

ITEM	PART NUMBER	DESCRIPTION		AREA
			MAKER	
IC 101	LC7818	I.C.	SANYO	
IC 102	TA7317P	I.C.	TOSHIBA	
IC 301	M5219P	I.C.	MITSUBISHI	

DIODES

BOM BOM					
A	ITEM	PART NUMBER	DESCRIPTION		AREA
			MAKER		
	D101	1SS133	SILICON	ROHM	
	D102	1SS133	SILICON	ROHM	
	D103	1SS133	SILICON	ROHM	
	D104	1SS133	SILICON	ROHM	
	D105	1SS133	SILICON	ROHM	
	D106	1SS133	SILICON	ROHM	
	D111	1SS133	SILICON	ROHM	
	D112	1SS133	SILICON	ROHM	
	D113	MTZ5.6JC	ZENER	ROHM	
	D115	MTZ13JC	ZENER	ROHM	
	D116	MTZ13JC	ZENER	ROHM	
	D117	MTZ6.8JC	ZENER	ROHM	
	D211	SLR-34VR3F	L.E.D.	ROHM	
	D212	SLR-34DU3F	L.E.D.	ROHM	
	D213	SLR-34DU3F	L.E.D.	ROHM	
	D214	SLR-34DU3F	L.E.D.	ROHM	
	D215	SLR-34DU3F	L.E.D.	ROHM	
	D216	SLV-31YC3F	L.E.D.	ROHM	

CAPACITORS

ITEM	PART NUMBER	DESCRIPTION		AREA
C001	QCZ9019-472	4700PF	CERAMIC	B
C001	QCZ9019-472	4700PF	CERAMIC	C
C001	QCZ9019-472BS	4700PF	CERAMIC	DBS
C101	QFS81HJ-221	220PF 50V	POLYSTYROL	C
C102	QFS81HJ-221	220PF 50V	POLYSTYROL	C
C103	QCS21HJ-221	220PF 50V	CERAMIC	C
C104	QCS21HJ-221	220PF 50V	CERAMIC	C
C105	QCS21HJ-221	220PF 50V	CERAMIC	C
C106	QCS21HJ-221	220PF 50V	CERAMIC	C
C107	QCS21HJ-221	220PF 50V	CERAMIC	C
C108	QCS21HJ-221	220PF 50V	CERAMIC	C
C109	QCS21HJ-221	220PF 50V	CERAMIC	C
C110	QCS21HJ-221	220PF 50V	CERAMIC	C
C111	QCS21HJ-221	220PF 50V	CERAMIC	C
C112	QCS21HJ-221	220PF 50V	CERAMIC	C
C113	QCF21HP-473	0.047MF 50V	CERAMIC	
C114	QCF21HP-223	0.022MF 50V	CERAMIC	
C115	QCF21HP-223	0.022MF 50V	CERAMIC	
C116	QCF21HP-223	0.022MF 50V	CERAMIC	
C117	QCF21HP-223	0.022MF 50V	CERAMIC	
C119	QCF21HP-223	0.022MF 50V	CERAMIC	
C121	QCS21HJ-221	220PF 50V	CERAMIC	
C122	QCS21HJ-221	220PF 50V	CERAMIC	
C125	QCS21HJ-221	220PF 50V	CERAMIC	C
C126	QCS21HJ-221	220PF 50V	CERAMIC	C
C127	QCF21HP-223	0.022MF 50V	CERAMIC	
C131	QETB1EM-107	100MF 25V	ELECTRO	
C132	QETB1EM-107	100MF 25V	ELECTRO	
C133	QETB1HM-475	4.7MF 50V	ELECTRO	
C146	QFN81HJ-562	5600PF 50V	MYLAR	
C147	EEZ0502-479	47000MF 5.5V	ELECTRO	
C148	QFN81HJ-562	5600PF 50V	MYLAR	
C149	QFN81HK-473	0.047MF 50V	MYLAR	
C150	QETB1HM-225	2.2MF 50V	ELECTRO	
C151	QCS21HJ-331	330PF 50V	CERAMIC	
C152	QETB1CM-226	22MF 16V	ELECTRO	
C153	QETB1HM-475	4.7MF 50V	ELECTRO	
C154	QETB1CM-107	100MF 16V	ELECTRO	
C155	QETB1HM-474	0.47MF 50V	ELECTRO	
C201	QFN81HK-333	0.033MF 50V	MYLAR	
C202	QFN81HK-333	0.033MF 50V	MYLAR	
C205	QCS21HJ-470	47PF 50V	CERAMIC	C
C206	QCS21HJ-470	47PF 50V	CERAMIC	C
C303	QCS21HJ-151	150PF 50V	CERAMIC	
C304	QCS21HJ-151	150PF 50V	CERAMIC	
C305	QFN81HK-103	0.01MF 50V	MYLAR	
C306	QFN81HK-103	0.01MF 50V	MYLAR	
C307	QCS21HJ-331	330PF 50V	CERAMIC	C
C307	QCS21HJ-470	47PF 50V	CERAMIC	A
C307	QCS21HJ-470	47PF 50V	CERAMIC	B
C307	QCS21HJ-470	47PF 50V	CERAMIC	DBS
C308	QCS21HJ-331	330PF 50V	CERAMIC	C
C308	QCS21HJ-470	47PF 50V	CERAMIC	A
C308	QCS21HJ-470	47PF 50V	CERAMIC	B
C308	QCS21HJ-470	47PF 50V	CERAMIC	DBS
C309	QFN81HK-392	3900PF 50V	MYLAR	
C310	QFN81HK-392	3900PF 50V	MYLAR	
C311	QFN81HK-822	8200PF 50V	MYLAR	
C312	QFN81HK-822	8200PF 50V	MYLAR	
C313	QCS21HJ-151	150PF 50V	CERAMIC	
C314	QCS21HJ-151	150PF 50V	CERAMIC	
C315	QFN81HK-473	0.047MF 50V	MYLAR	
C316	QFN81HK-473	0.047MF 50V	MYLAR	
C317	QETB0JM-228	2200MF 6.3V	ELECTRO	
C318	QETB0JM-228	2200MF 6.3V	ELECTRO	
C319	QFN81HJ-472	4700PF 50V	MYLAR	
C320	QFN81HJ-472	4700PF 50V	MYLAR	
C321	QCS21HJ-331	330PF 50V	CERAMIC	
C322	QCS21HJ-331	330PF 50V	CERAMIC	
C323	QFN81HJ-153	0.015MF 50V	MYLAR	
C324	QFN81HJ-153	0.015MF 50V	MYLAR	
C325	QFN81HJ-272	2700PF 50V	MYLAR	
C326	QFN81HJ-272	2700PF 50V	MYLAR	
C327	EETB2AM-106E	10MF 100V	ELECTRO	
C328	EETB2AM-106E	10MF 100V	ELECTRO	

RESISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
R103	QRD167J-104	100K 1/6W CARBON	
R104	QRD167J-104	100K 1/6W CARBON	
R105	QRD167J-471	470 1/6W CARBON	
R106	QRD167J-471	470 1/6W CARBON	
R111	QRD167J-471	470 1/6W CARBON	
R112	QRD167J-471	470 1/6W CARBON	
R113	QRD167J-471	470 1/6W CARBON	
R114	QRD167J-471	470 1/6W CARBON	
R115	QRD167J-471	470 1/6W CARBON	
R116	QRD167J-471	470 1/6W CARBON	
R117	QRD167J-471	470 1/6W CARBON	
R118	QRD167J-471	470 1/6W CARBON	
R119	QRD167J-471	470 1/6W CARBON	
R120	QRD167J-471	470 1/6W CARBON	
R123	QRZ0077-101	100 1/4W FUSIBLE	
R124	QRZ0077-101	100 1/4W FUSIBLE	
R126	QRD167J-104	100K 1/6W CARBON	
R127	QRD167J-104	100K 1/6W CARBON	
R131	QRD167J-103	10K 1/6W CARBON	
R132	QRD167J-103	10K 1/6W CARBON	
R133	QRD167J-105	1M 1/6W CARBON	
R134	QRD167J-103	10K 1/6W CARBON	
R135	QRD167J-474	470K 1/6W CARBON	
R136	QRD167J-562	5.6K 1/6W CARBON	
R137	QRD167J-473	47K 1/6W CARBON	
R138	QRD167J-392	3.9K 1/6W CARBON	
R139	QRD167J-104	100K 1/6W CARBON	
R140	QRD167J-104	100K 1/6W CARBON	
R141	QRD167J-223	22K 1/6W CARBON	
R143	QRD167J-102	1K 1/6W CARBON	
R144	QRD167J-102	1K 1/6W CARBON	
R146	QRD167J-122	1.2K 1/6W CARBON	
R147	QRD167J-473	47K 1/6W CARBON	
R148	QRD167J-273	27K 1/6W CARBON	
R149	QRD167J-182	1.8K 1/6W CARBON	
R150	QRD167J-182	1.8K 1/6W CARBON	
R201	QRD167J-562	5.6K 1/6W CARBON	
R202	QRD167J-562	5.6K 1/6W CARBON	
R203	QRD167J-472	4.7K 1/6W CARBON	
R204	QRD167J-472	4.7K 1/6W CARBON	
R205	QVDA98W-EF5B	250K VARIABLE	
R207	QRD167J-223	22K 1/6W CARBON	
R208	QRD167J-223	22K 1/6W CARBON	
R211	QVD8A7B-AF5VA	250K VARIABLE	
R251	QRD167J-122	1.2K 1/6W CARBON	
R252	QRD167J-122	1.2K 1/6W CARBON	
R253	QRD167J-122	1.2K 1/6W CARBON	
R254	QRD167J-122	1.2K 1/6W CARBON	
R255	QRD167J-122	1.2K 1/6W CARBON	
R256	QRD167J-122	1.2K 1/6W CARBON	
R257	QRD167J-122	1.2K 1/6W CARBON	
R258	QRD167J-122	1.2K 1/6W CARBON	
R259	QRD167J-122	1.2K 1/6W CARBON	
R260	QRD167J-122	1.2K 1/6W CARBON	
R261	QRD167J-122	1.2K 1/6W CARBON	
R262	QRD167J-122	1.2K 1/6W CARBON	
R265	QRD167J-104	100K 1/6W CARBON	
R301	QRD167J-102	1K 1/6W CARBON	C
R302	QRD167J-102	1K 1/6W CARBON	C
R303	QRD167J-473	47K 1/6W CARBON	
R304	QRD167J-473	47K 1/6W CARBON	
R305	QRD167J-471	470 1/6W CARBON	
R306	QRD167J-471	470 1/6W CARBON	
R307	QRD167J-5R6	5.6 1/6W CARBON	
R308	QRD167J-5R6	5.6 1/6W CARBON	
R309	QRD167J-101	100 1/6W CARBON	
R310	QRD167J-101	100 1/6W CARBON	
R311	QRD167J-562	5.6K 1/6W CARBON	
R312	QRD167J-562	5.6K 1/6W CARBON	
R313	QRD167J-270	27 1/6W CARBON	
R314	QRD167J-270	27 1/6W CARBON	
R315	QRD167J-561	560 1/6W CARBON	
R316	QRD167J-561	560 1/6W CARBON	
R317	QRD167J-562	5.6K 1/6W CARBON	
R318	QRD167J-562	5.6K 1/6W CARBON	
R319	QRD167J-222	2.2K 1/6W CARBON	
R320	QRD167J-222	2.2K 1/6W CARBON	
R321	QRD167J-272	2.7K 1/6W CARBON	
R322	QRD167J-272	2.7K 1/6W CARBON	
R323	QRD167J-273	27K 1/6W CARBON	
R324	QRD167J-273	27K 1/6W CARBON	
R325	QRD167J-273	27K 1/6W CARBON	
R326	QRD167J-273	27K 1/6W CARBON	
R327	QRD167J-150	15 1/6W CARBON	C
R327	QRD167J-180	18 1/6W CARBON	A
R327	QRD167J-180	18 1/6W CARBON	B
R327	QRD167J-180	18 1/6W CARBON	DBS
R328	QRD167J-150	15 1/6W CARBON	C
R328	QRD167J-180	18 1/6W CARBON	A
R328	QRD167J-180	18 1/6W CARBON	B

RESISTORS

ITEM	PART NUMBER	DESCRIPTION	AREA
R328	QRD167J-180	18 1/6W CARBON	DBS
R329	QRD167J-221	220 1/6W CARBON	
R330	QRD167J-221	220 1/6W CARBON	
R331	QRD167J-153	15K 1/6W CARBON	
R332	QRD167J-153	15K 1/6W CARBON	
R333	QRD167J-184	180K 1/6W CARBON	
R334	QRD167J-184	180K 1/6W CARBON	
R335	QRD167J-331	330 1/6W CARBON	
R336	QRD167J-331	330 1/6W CARBON	
R337	QRD167J-104	100K 1/6W CARBON	
R338	QRD167J-104	100K 1/6W CARBON	
R363	QRD167J-332	3.3K 1/6W CARBON	
R364	QRD167J-332	3.3K 1/6W CARBON	

Δ : SAFETY PARTS

OTHERS

ITEM	PART NUMBER	DESCRIPTION	AREA
	EMG7331-001	FUSE CLIP	B
	EMG7331-001	FUSE CLIP	C
	EMG7331-001	FUSE CLIP	DBS
	ENZ2006-001	SHIELD CASE	C
	EWTO11-091	TERMINAL WIRE	
	E03532-001	SHIELD CASE	C
	E11418-203	PC BOARD	A
	E11418-203	PC BOARD	B
	E11418-203	PC BOARD	C
	E11418-203BS	PC BOARD	DBS
	E65508-002	TAB	B
	E65508-002	TAB	C
	E65508-002	TAB	DBS
	E67132-T2R5	FUSE LABEL	B
	E67132-T2R5	FUSE LABEL	C
	E67132-T2R5	FUSE LABEL	DBS
	E67764-202	WRAPPING TERMINAL	B
	E67764-202	WRAPPING TERMINAL	C
	E67764-202	WRAPPING TERMINAL	DBS
	E67764-203	WRAPPING TERMINAL	B
	E67764-203	WRAPPING TERMINAL	C
	E67764-203	WRAPPING TERMINAL	DBS
	E74008-001	BRACKET	
J101	EMN00TV-405A	4P PIN JACK	
J102	EMN00TV-402A	4P PIN JACK	
J103	EMN00TV-402A	4P PIN JACK	
J104	EMN00TP-404A	4P PIN JACK	
J105	E03623-003	DIN SOCKET	
J109	EMV7112-009	CONNECTOR	
J201	EMV7112-003R	CONNECTOR	
L301	EQL0111-391	INDUCTOR	C
L302	EQL0111-391	INDUCTOR	C
S201	ESP0001-007	TACT SWITCH	
S202	ESP0001-007	TACT SWITCH	
S203	ESP0001-007	TACT SWITCH	
S204	ESP0001-007	TACT SWITCH	
S205	ESP0001-007	TACT SWITCH	
S206	QST4262-E02	PUSH SWITCH	
S207	QST4262-E02	PUSH SWITCH	
S208	QST4102-E08	PUSH SWITCH	
S209	QST4102-E08	PUSH SWITCH	
S210	QST4102-E09	PUSH SWITCH	
FW101	EWR23C-16NN	FLAT WIRE	
FW102	EWR23C-16NN	FLAT WIRE	
FW104	EWR23C-25NN	FLAT WIRE	
FW105	EWR23C-25NN	FLAT WIRE	
FW106	EWR33B-16SST	FLAT WIRE	
FW107	EWR23C-20NN	FLAT WIRE	
FW108	EWR33B-20SST	FLAT WIRE	
FW109	EWR39B-16KST	FLAT WIRE	
FW110	EWR23C-40NN	FLAT WIRE	
FW111	EWR33B-20SST	FLAT WIRE	
FW112	EWR33B-16KST	FLAT WIRE	
FW113	EWR23C-20NN	FLAT WIRE	
FW701	EWR23C-16JN	FLAT WIRE	

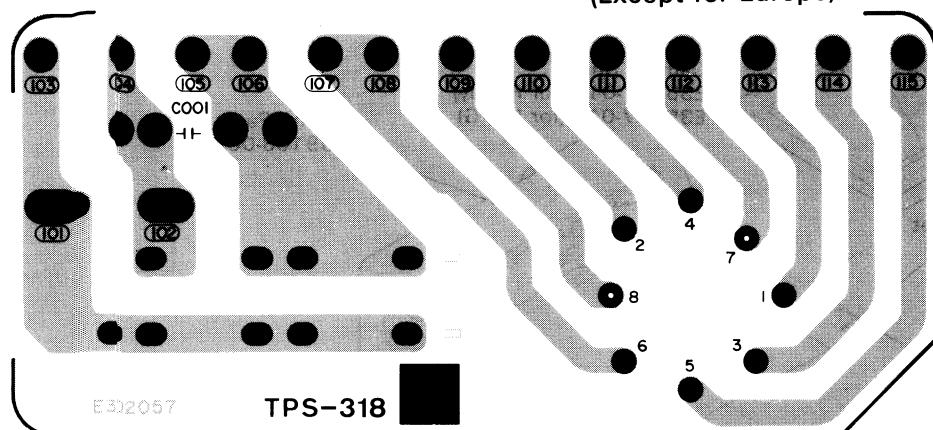
Δ : SAFETY PARTS

OTHERS

ITEM	PART NUMBER	DESCRIPTION	AREA
FW801	EWR33B-16KST	FLAT WIRE	

■ TPS-318A Voltage Selector PC Board

(Except for Europe, West Germany, the U.K. and Australia)



CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		C001 QCZ9018-103	0.01MF	CERAMIC

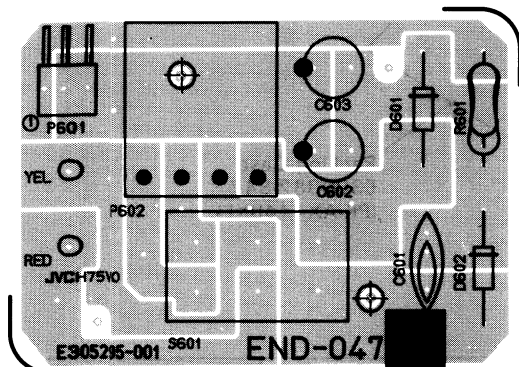
OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		E302057-002	PC BOARD	
		E65508-002	TAB	
		E67764-302	WRAPPING TERMINAL	
		E67764-303	WRAPPING TERMINAL	
		E67764-304	WRAPPING TERMINAL	
Δ		QMC0637-004	AC OUTLET	
Δ		QSR0085-006U	VOLTAGE SELECTOR	A

Δ : SAFETY PARTS

■ END-047A Impedance Selector PC Board

(for Europe, West Germany, the U.K. and Australia)



DIODES

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
			MAKER	
	D601	10E2FD-1	ZENER	NIHONINTER
	D602	10E2FD-1	ZENER	NIHONINTER

CAPACITORS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		C603 QETB1JM-107	100MF 63V ELECTRO	

RESISTORS

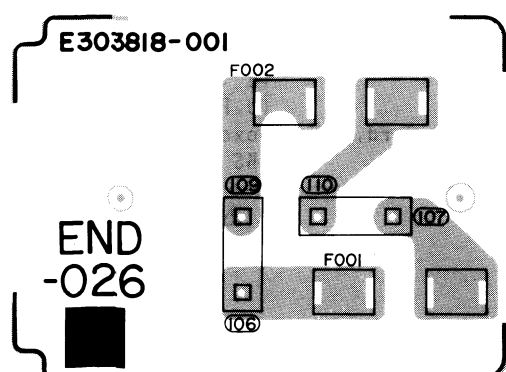
Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
Δ	R601	QRG012J-102A	1K 1W O.M.FILM	

OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMV5102-004B	PLUG ASSY	
		E305295-001	PC BOARD	
		QMV5004-003K	PLUG ASSY	
	S601	QSS5C22-E03	SLIDE SWITCH	

■ END-026A Power Primary PC Board

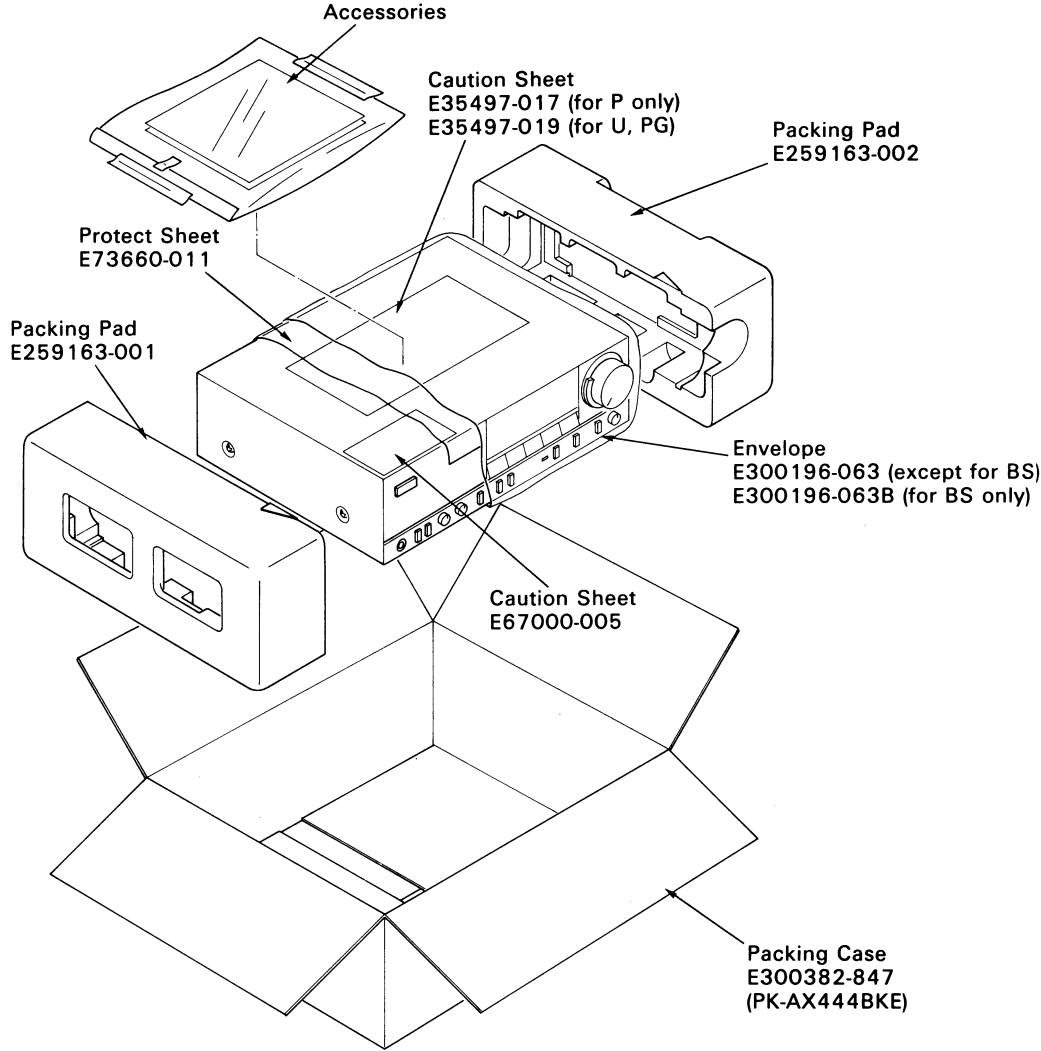
(Except for Europe, West Germany, the U.K. and Australia)



OTHERS

Δ	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMG7331-001	FUSE CLIP	
		E303818-001	PC BOARD	
		E67764-202	WRAPPING TERMINAL	

Packing Materials and Part Numbers



Accessories List




△	Parts Number	Parts Name	Description	Areas
	E30580-1432B E30580-1432BBS BT20029C BT20098 BT20064A	Instruction Book Instruction Book Warranty Card Audio Warranty Card Warranty Card		except for BS BS only A A G
	QZL1008-001 BT20060 BT20066 BT20048B BT20046C	Information Sheet Warranty Card EEC Agency Warranty Card Service Information		G BS G, BS P, PG P, PG
△	E30580-1412A E04056 E41202-2 E41202-2B	Instruction Sheet Siemens Plug Envelope Envelope	for the Inst.Book, W.Card, etc.	E U, PG except for BS BS only

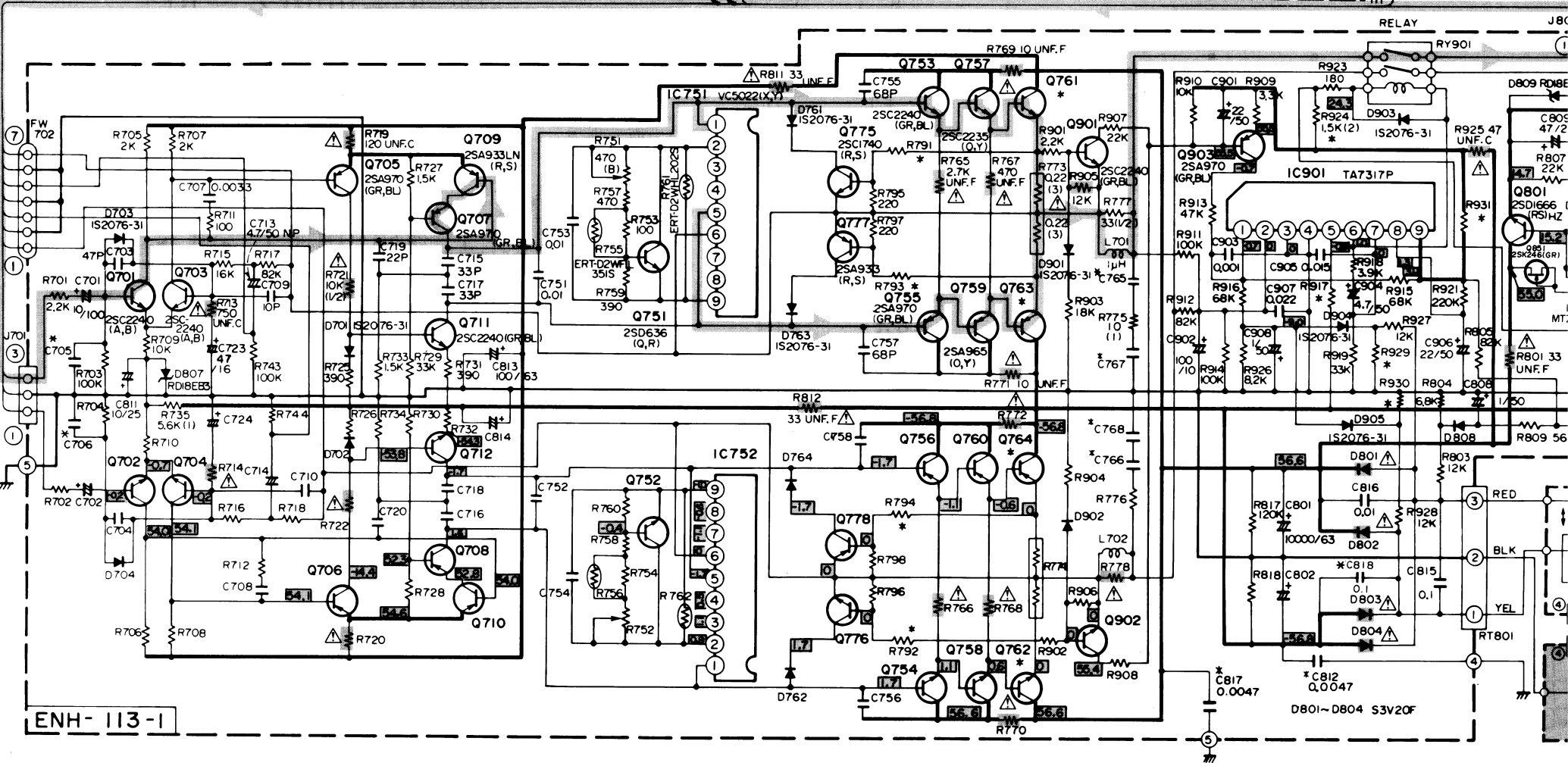
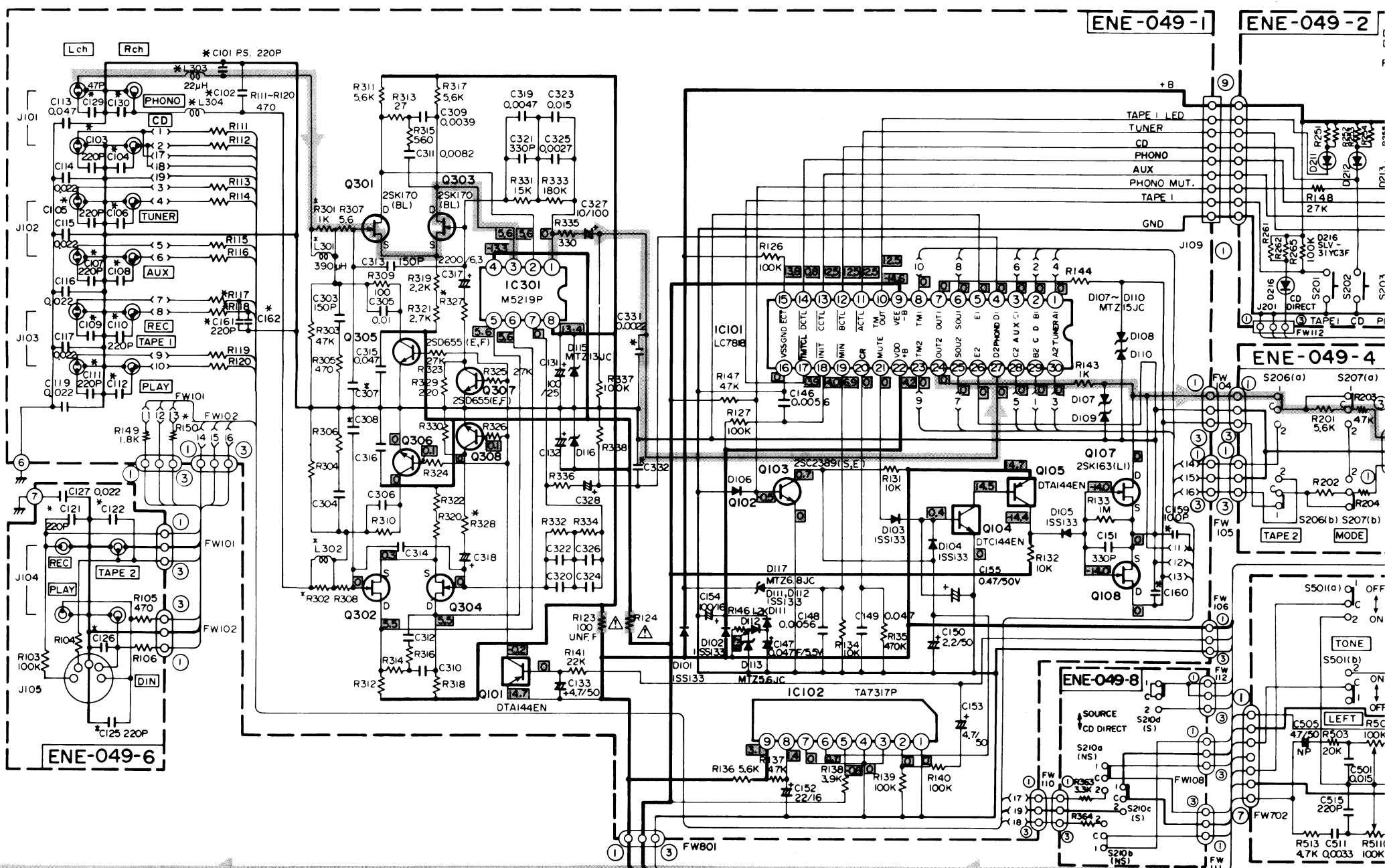
Note: The Marks for Designated Areas
E Europe
A Australia
G West Germany
BS U.K.
P, PG U.S.Military Market
UE Saudi Arabia
U Other Countries
No Mark indicates all areas.

△:Safety Parts

Schematic Diagram

Notes:

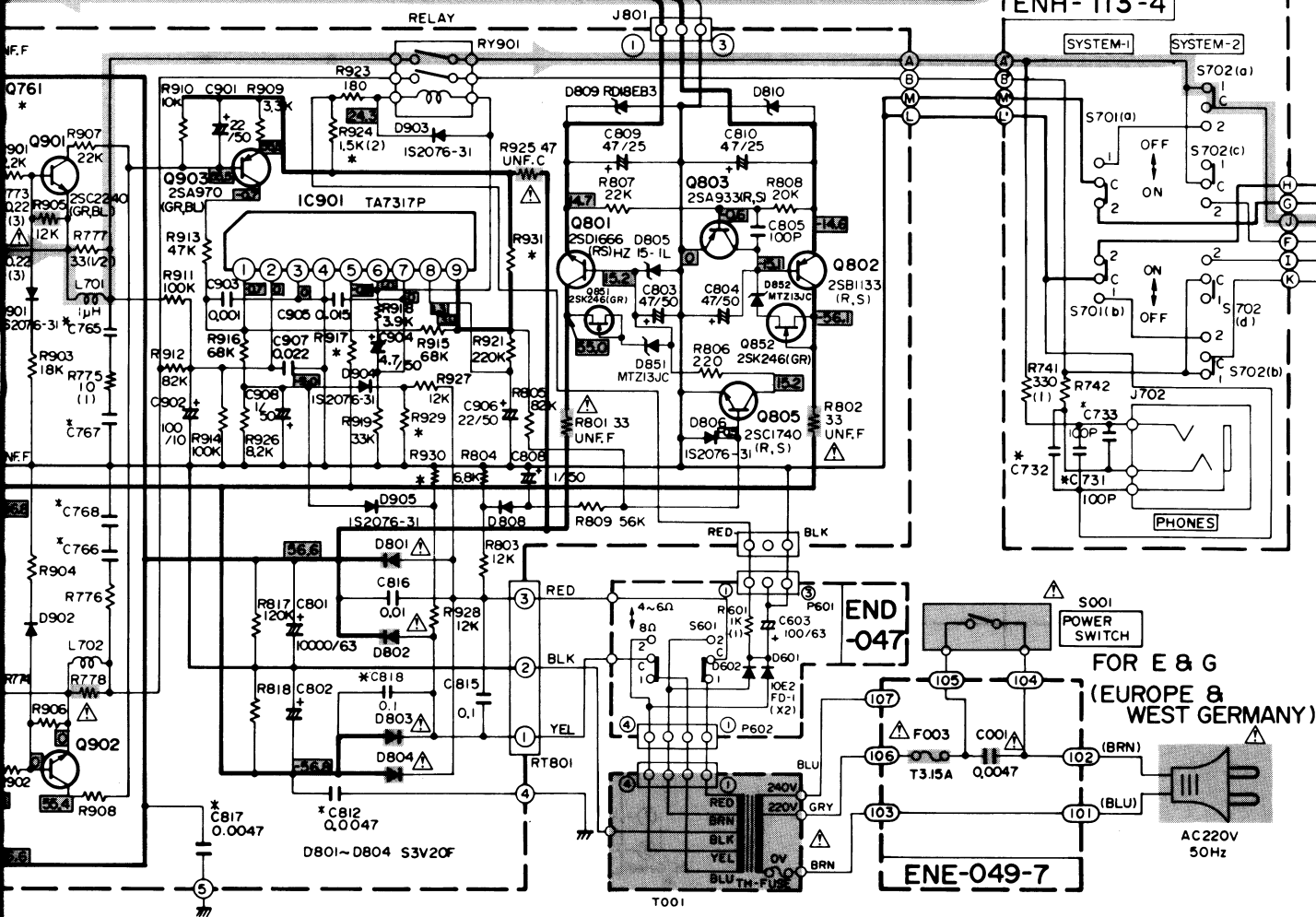
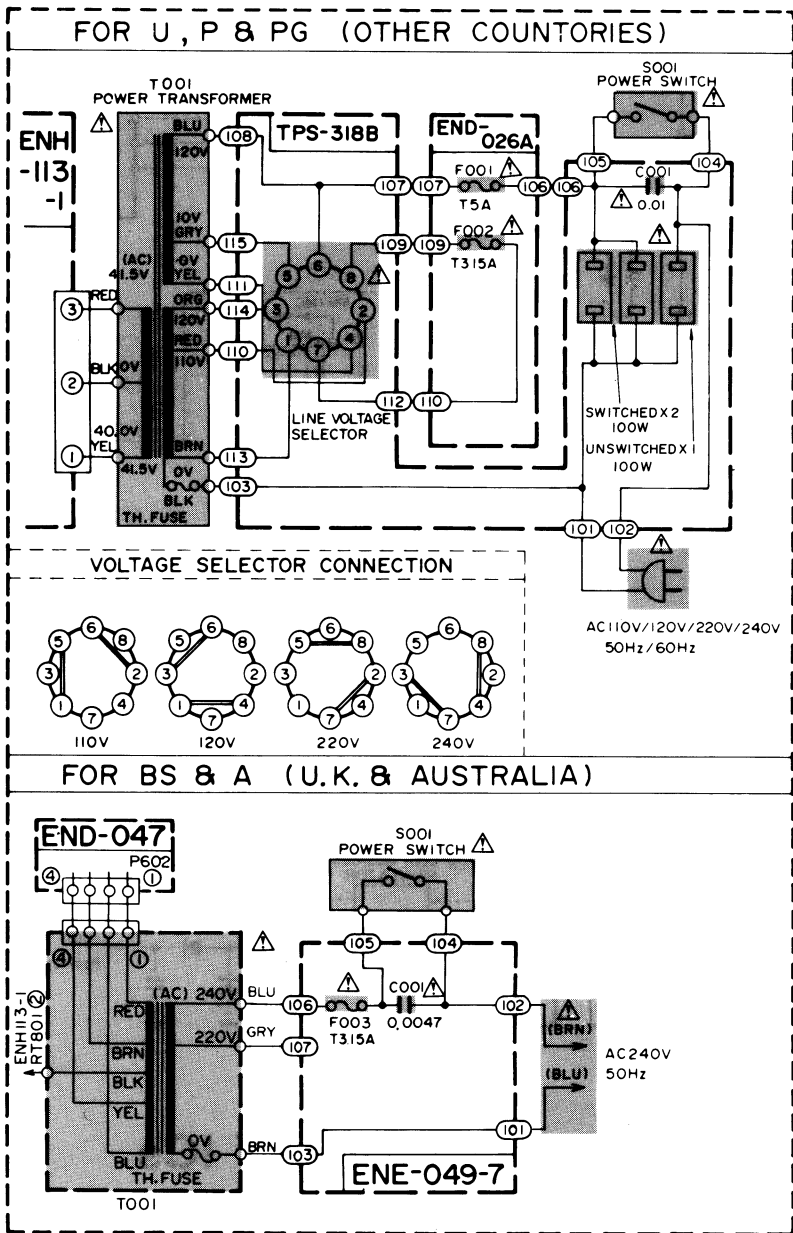
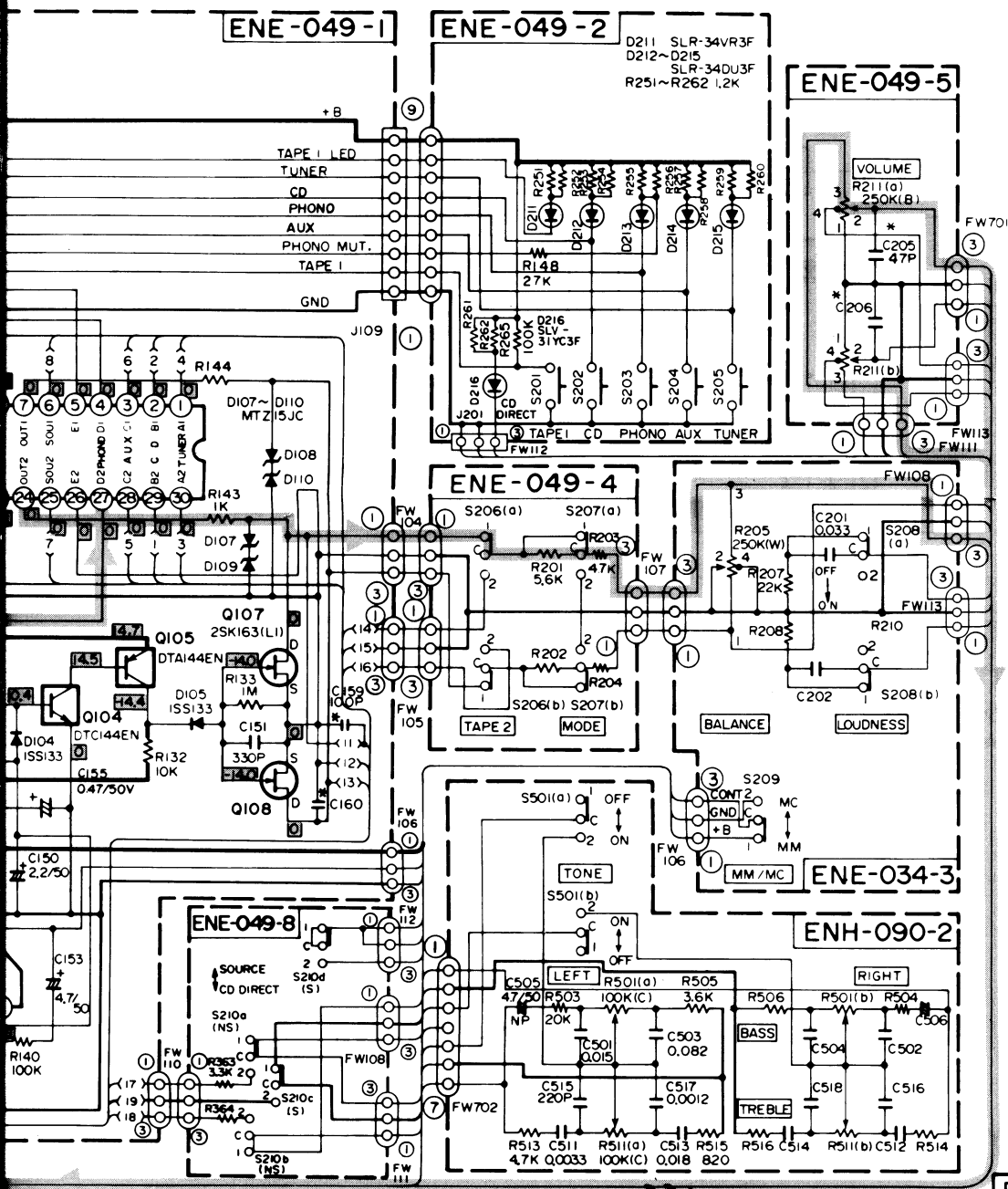
1.  shows DC voltage to the
2.  indicates $\pm B$ power supply
3.  indicates signal path.



Notes:

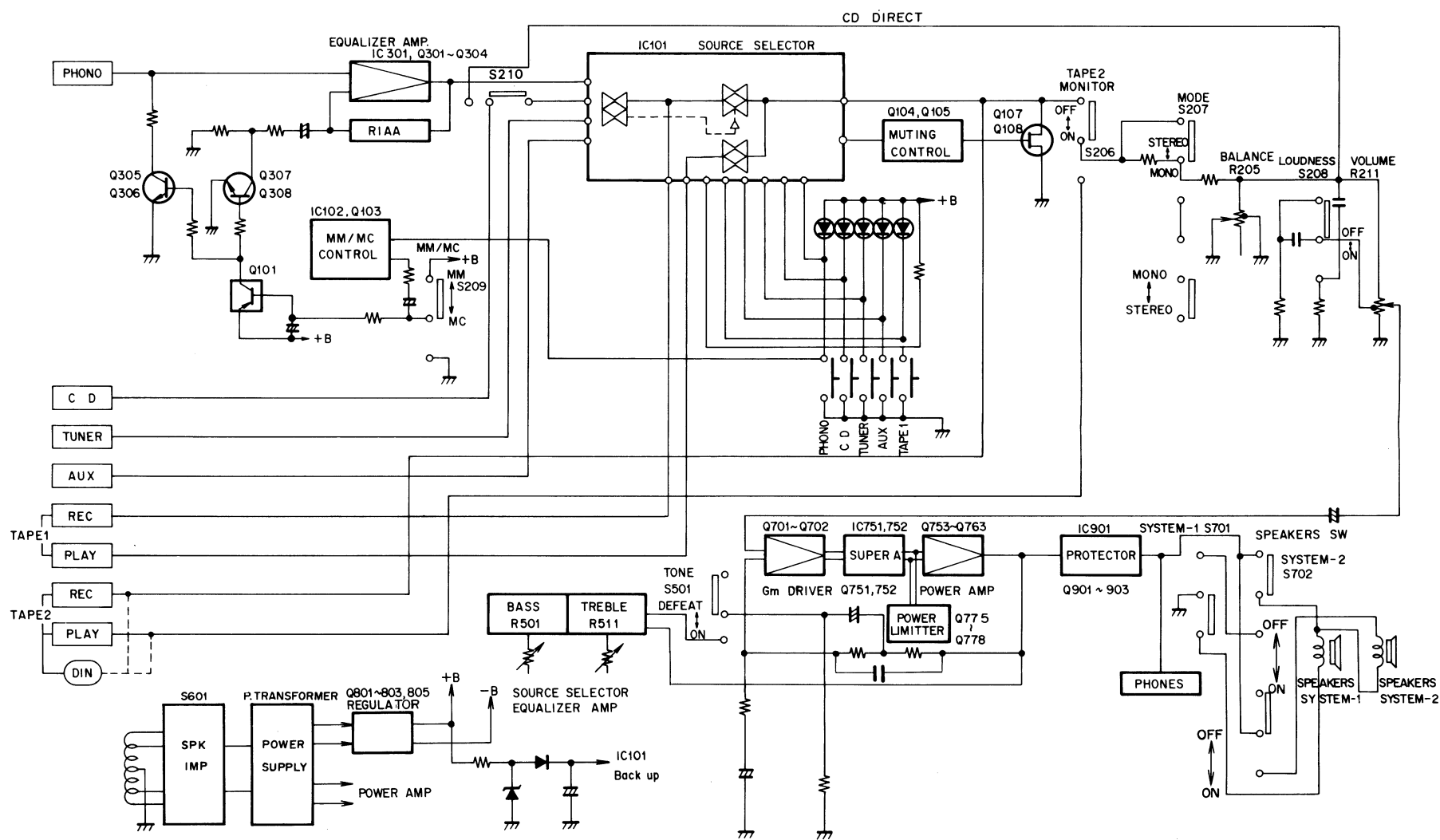
1. ■ shows DC voltage to the chassis with no signal input.
2. — indicates \pm B power supply.
3. ■ indicates signal path.

4. When replacing the parts in the darkened area (■) and those marked with ▲, be sure to use the designated parts to ensure safety.
 5. This is the standard circuit diagram.
- The design and contents are subject to change without notice.



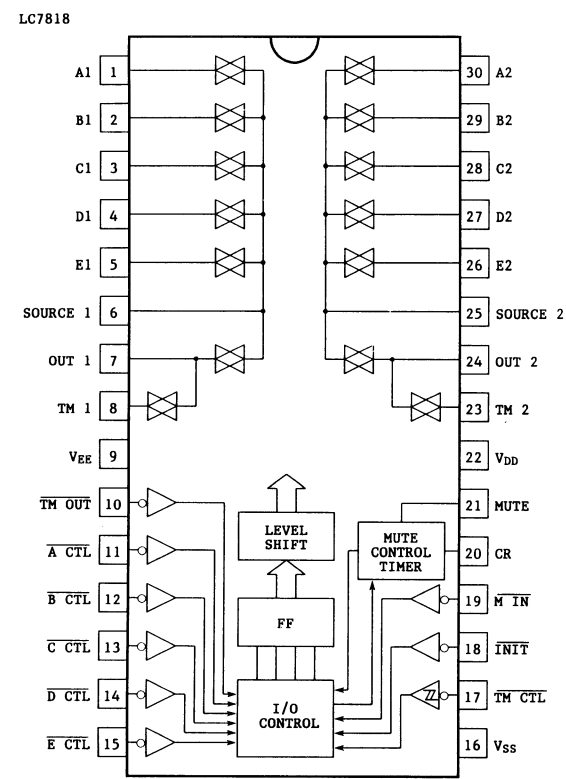
COUNTRY	(G) WEST GERMANY	(E, A, BS) EUROPE	(U, UE, P, PG) OTHERS
SYMBOL NO.			
C101, C102	USED	NONE	—
C103 ~ C112	USED	NONE	—
C125, C126	USED	NONE	—
C307, C308	330P	47P	—
L301, L302	USED	NONE	—
C731 ~ C733	USED	NONE	—
C761 ~ C764	USED	NONE	—
C765, C766	0.1	0.1	0.047
C767, C768	0.1	0.1	SHORT
C812, C817	USED	NONE	—
R745 ~ R748	USED	NONE	—
R301, R302	USED	SHORT	—
C705, C706	NONE	100P	—
C205, C206	USED	NONE	—
R327, R328	15	18	—
C818	USED	NONE	—
C129, C130	USED	NONE	—
L303, L304	USED	NONE	—
R924	NONE	NONE	USED
R917	18K	18K	20K
R929, R930	8.2K	8.2K	6.8K
R931	27K	27K	30K
R810, R813	10K	10K	12K
Q761, Q762	2SD845LBIO,R	2SD845LBIO,R	2SD1148LBIO,R
Q763, Q764	2SB755LBIO,R	2SB755LBIO,R	2SB863LBIO,R
R791 ~ R794	430	430	330

Block Diagram

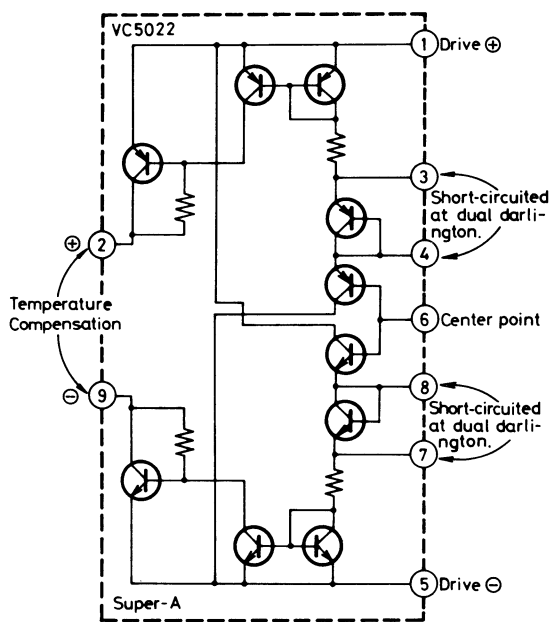


Internal Block Diagram of ICs

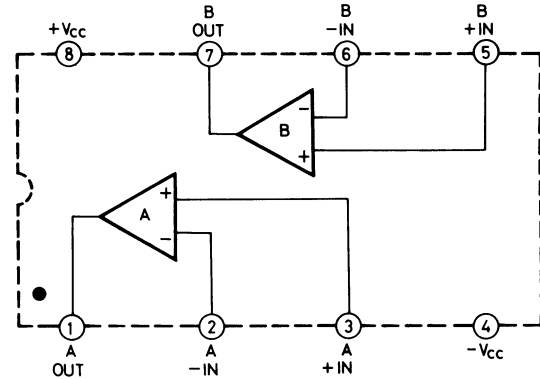
■ LC7818 (IC101)



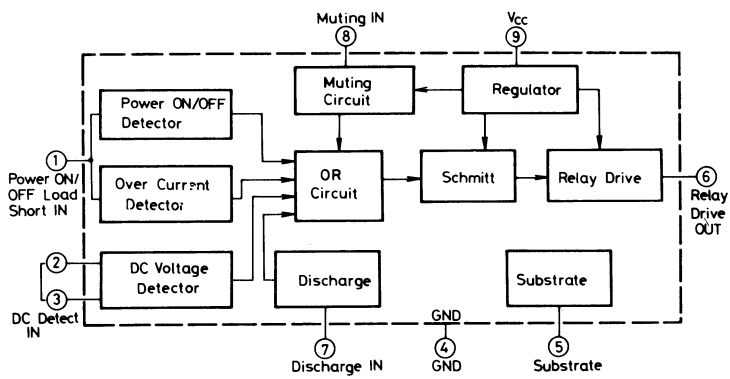
■ VC5022 [X, Y] (IC751, IC752)



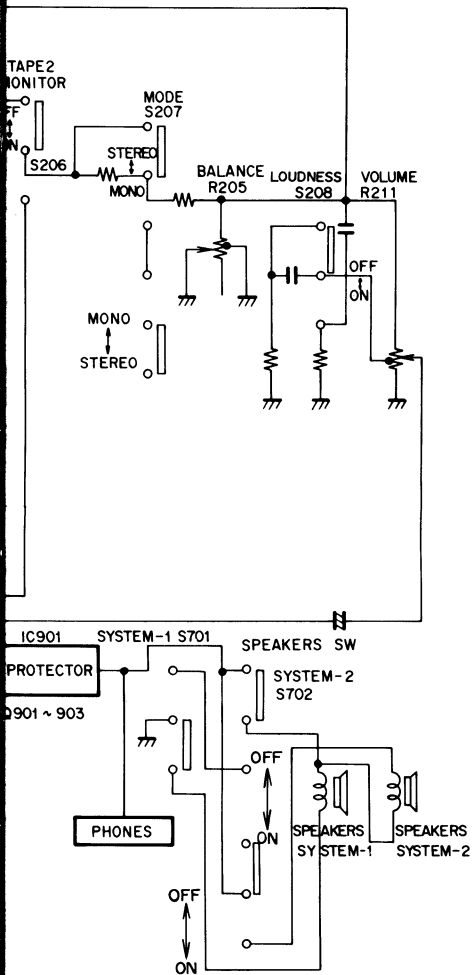
■ M5218P (IC301)



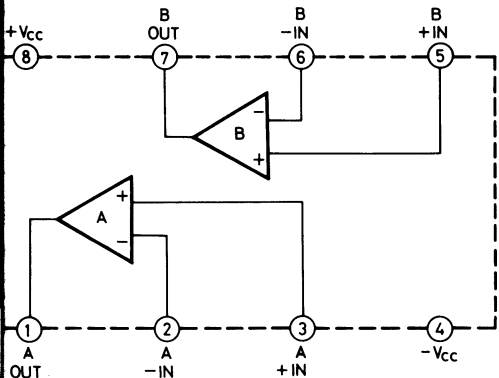
■ TA731P (IC102, IC901)



Connection Diagram



M5218P (IC301)



TA731P (IC102, IC901)

